	5 0 0 0 0 0		0000		CORP	SOF	DISTRICT ENGINEERS	Project:				YG UF I, Alas	GRAE ka	E - F1	W230		Page 1 of 1
	S	oils	s ar	nd (			Section	Orilling A		*****	080	Alask	a Dist	rict			n Datum:
							V LOG	Location	No	rthing sting:		109, 14 124, 24				Top of H	lole
	le No P-17	ımber	, Field	l:	Perma AP-7			Drifler: Bill Te	ster	<u> </u>		<u></u>		<del></del>	Inspector.		
	e of Tes	Hole: Pil		other Auger		□ Mor	nitoring Well	ezomeler	Depth			water m AD	:		Depth Drill 7.5 m	led:	Total Depth:
	nme 136 A	r Wei g	ght:		it Spoon 63.5 mm	I.D:	Size and Type of 203.2 mm Rock		L	1		Equipa Soil I	nent: Vax			Type of S Grab a	amples: nd Drive
Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 24	188	%Gravel	%Sand	Τ	Max Size (mm)	PID (ppm)	% Water		Descriptio	n and Remarks
_ 1		1	Nbn	1	Grab	GM	Silty GRAVEL with S	Sand				19.1			Brown, fro test boring	izen, subrou g located in	inded gravel, fine sand, roadway, fill
- 2		2		F4	42 50 52 30	ML	Sandy SILT		8	40	52	50.8	0.4	17	Brown, fro wood fiber	zen, line sa s in auger c	nd, nonplastic (NP) lines, uttings, fill
- 3		3		F2	3 4 3 4	SM	Silty SAND with Grav	vel	24	33	44	38.1	0.9	16	Brown to d wood fragr sample, fill	nents, stick	oist, fine sand, NP fines, s and glass present in
50		4a _4b_		PFS	1 2 6 7	ML GP	SILT Poorly graded GRAV Sand	EL with	49	47	4	38.1	0.4	10	observed in	n auger cutt L, subround	NP fines, metal debris ings, fill ed gravel, fine and
6	0000	5			3 2 3 6	SW	Well-graded SAND wi	ith Gravel				19.1	0.5		Gray, wet, s coarse sand		gravel, medium to
•	0000	6			4 8 11 13	SP	Poorty graded SAND	with Gravel				31.8	0.4		Gray, wet, s coarse sand	ubrounded I	gravel, medium lo
9															depth 4.75 n	129,7 m er Encounter n	red After Drilling; at
		19-E	Obs						Project						T-W220		Hole Number:

2				8	CORPS	OF E	DISTRICT ENGINEERS	1 7	FAMIL Fort W					FTI	V230		Page 1 of 1 Date: 26 Jan 2001
<u>-                                   </u>	S(		ar		ENGINE	ERIN	Section	Drilling Age			1 <b>3</b> 0 A	laska	Distric	cl			on Datum:
							LOG	Location:		-		9,121 4,181			· · · · · · · · · · · · · · · · · · ·	Top of i	
1	: Nui :-18	mber,	Field		Perman AP-75			Driller: Bill Test	er .						inspector: Steve H		
i '	e of l			other Auger I	tole [	] Mon	itoring Well	D ezometer	epth to	-	undw .72 m				Depth Drill 7.5 m	led:	Total Depth: 8.1 m
	mer 36 kg	Weig g			t Spoon ! 3.5 mm	.D:	Size and Type of 203.2 mm Rock			-		quipm Soil M					Samples: and Drive
Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 24	188	%Gravel	rain S %Saud	ze seui.3%	Max Size (mm)	PID (ppm)	% Water		Descripti	on and Remarks
		1	Nbn		Grab	ML	Gravelly SILT with S	Sand	%	34	88	6.4	0.4	%		arse sand, I	ist, subrounded gravel, nonplastic (NP) fines,
- 2		2			4 4 5 4	SP	Poorly graded SANI	o					0.2		Brown, ma	oist, line to	medium sand, NP fines
- - 3		3:	The state of the s	NFS	2 3 10 11	5P	Poorly graded SANI	D with Gravel	35	63	2	50.8	0.3	2	Brown, m NP fines	oist, subro	unded gravel, fine sand,
- 4					5 7 16 14	GP- GM	Poorly graded GRA' and Sand	VEL with Silt				19.1	0.3	_	Mottled br medium to		s, subrounded gravel, and, NP fines
- 6		5			2235	SP	Poorly graded SANE	) <sup>*</sup>		-		12.7	0.2		. 1.2 m of he Gray, wet,	-	
- 7		6			15 16 13 10	SP	Poorly graded SANG and Cobbles	) with Gravel				88.9	0.3		Gray, wet, fine to coa		rd gravel and cobbles,
- 9						-									Groundwa depth 4.72	n 129.6 m ter Encoun m	itered While Drilling: at ization Detector
NPA May				solete			ADDE	NDIX 4 Pa		HILY !	HOUS	ing u	IPGR/	ADE -	FTW230	······································	Hole Number: AP-7933

					ENGINE	ERIN	ENGINEERS IG SERVICES	Drilling Ag	Fort V	Vainw			ra Bistri	ict			Date: 26 Jan 200 on Datum:
							Section	Oth	•		<u> </u>	110340	2 (2)301	ICI		OXO M	· · · · · · · · · · · · · · · · · · ·
	E	XI	PL	OF	TAS	101	N LOG	Location:		thing sting:		09,153 23,815			3 g	Top of Elevation	and the second s
Hole AP-		nber,	Field	:	Permar AP-7			Driller: Bill Tes	ter						Inspector Steve I	Henslee	
Type				other Auger		] Mon	illoring Well	- ezomeler	Depth I		ounds 6.85 n			* * * * · ·	Depth Dri	lled:	Total Depth: 8.1 m
	mer 36 kg	Weig	jht:	- 1	it Spoon 63.5 mm	I.D:	Size and Type o					quipn Soil M				1 .	Samples:
(E)	χĝλ	_o	Frozen ASTM D 4083	Class. 822-5	Sount	-	Classification ASTM; D 2487 or D 24	88		Grain S	Τ	Max Size (mm)	(Ed	ē		Descripti	on and Remarks
Depth (m)	Lithology	Sample				Symbol	CH T 20 0 - 1		%Gravel	%Sand	%Fines		PIO (ppm)	% Water			
1200000		<b>1</b>	Non		Grab	ML	SILT with Sand					6.4	0.4				o moist, fine sand, s, possibly fill
200000000000000000000000000000000000000				\$2	***************************************	SM	Silty SAND with Gra	vel	24	42	34	38.1	0.3	13		oist, fine sa (roots), pos	ind, NP fines, trace sibly fill
3	0,000	3		NFS	5 4 5 4	SP	Poorly graded SANO	with Gravel	39	57	4	50.8	0.4	3	Brown, m	oisl, subrol	unded gravel, fine san
5		4.3 4.3 2.2			NR	SP	Poorly graded SAND		The state of the s				0.2	1	Brown, we	et, medium	sand
6	-	5			2 4 3 4	SP	Poorty graded SAND					9.7	0.3		Gray, wet,	medium sa	ind
	J .	6			6 7 8 9	SP	Poorty graded SAND	with Gravel				50.8	0.3		Gray, wet,	subrounde	d gravel, fine to coars
9															Groundwat depth 4.85	n 129,5 m ter Encount m	tered While Drilling: a
0 PA F	OFF	19-E						T	Project							<u>.</u>	Hole Number:

						Section	Orilling A			DXI A	laska	Distri	ct				Dalum:
E	XI	PL(	OR	ATI	01	1 LOG	Location	Nort Eas	_	-	9,006 23,909				Top of Elevai		e 137.4 m
Hole Nui AP-20	mber,	Field:		Permar AP-7			Driller: Bill Te	ster						Inspector: Steve H	lensiee		÷
Type of I			other uger H	iole [	] Mon	itoring Well	zomeler	Depth t			valer: WD			Depth Drill 7.6 m	ed:		Total Depth: 8.2 m
Hammer 136 kg	_	ht:	1	Spoon I	.D:	Size and Type o					quipn Soil M				Type o		nples:   Drive
Depth (m) Lithology	eld.	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	78	Classification ASTM: D 2487 or D 24	88		rain S	T	Max Size (mm)	РІО (ррт)	% Water		Descrip	ption a	and Remarks
E E	Sample	Froz SF AST	Fros	Srab	W Symbol	SILT		%Gravel	%Sand	%Fines	Max	음 1.8	M %	Brown, fro	zen, coa	rse s	and, nonplastic (
- 1																	
	2		F4	3 4 4	ML	SILT			5	94	12.7	2.1	34	Brown, ma		ines,	sticks and organ
- 2	2013			4													
- 3 <b>**</b>	3		F4	3 3 3	ML	Sandy SILT			50	50		2.5	22	Brown, mo	oist, fine	sand	NP fines, possib
- 🕌							·•						-				
- 5	4			1 2 3 3	ML	Sandy SILT	-					0.6	ļ .	Dark gray, present in		sanc	l, NP fines, organ
4000	5			2 2 5 4	SM	Sifty SAND						9.0		Gray, wet,	fine to m	nediur	n sand, NP fines
- 7 .ld-				7	SP	Poorly graded SAND					38.1	28		1.2 m of he	Lauina ea	and .	·
- 8	8			7 7 13 13	<b>J</b>	roony graded SAND					30.1	2.0		Gray, wet,	subroun	ded g	ravei, fine to coa
- 9														Groundwa depth 5.24	n 129.2 r ter Encor m	m unter	ed While Drilling: ion Detector
																	·

1							DISTRICT	Project:		ILY H				E • FT	W230		Page 1 of 1
	S	oils	ar	Jd (	ENGIN	EERII	Section	Drilling A	gency:				a Distr	ict		Elevatio	Date: 27 Jan 2001 n Datum:
							N LOG	Location:	No	orthing		09,04	5 m	<del> </del>		Top of H	
Hol			, Field		Perma			Driller:	Ea	asting	4	23,85	2 m	·····	Inspector:	Elevation	n: 137.1 m
	P-21 be of	Hole:		olher	AP-7	7936		Bill Tes				· · · · · · · · · · · · · · · · · · ·	<u>-</u>		Steve H		· .
	Tes			Auger		☐ Mo	nitoring Well 🔲 Pi	ezometer	Depth		ound: 4.88 n				Depth Drill 7.5 m	ed:	Total Depth: 8.f m
	nme 136 k	r Weiq g	jht:		lit Spoon 63.5 mm	I.D:	Size and Type of 203.2 mm Rock			1		quipr Soil M				Type of S Grab a	amples:
Depth (m)	Lithology	Sample	Frozen ASTMD 4083	st Class. 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 24	188	%Gravet	Grain	T	Max Size (mm)	PID (ppm)	% Water		Descriptio	n and Remarks
Dei	<u> </u>	- Sar	Npu ASS	Frost (TM 5.6	Grab	ML	SILT with Sand		0%	bus%	%Fines	Mex	음.8 6.8	M %	Brown, fro nonplastic	zen, mediui (NP) fines,	n to coarse sand, possibly fill
2		2			2 3 3 2	ML	Sandy SILT						3.2		Brown, mo possibly fil	ist, fine to r I	nedium sand, NP lines,
3		: 3 : 3 : 3		F4	2 3 4 3	ML.	SILT	- 300		7	93		2,4	38	Brown, moi	st, fine san	d, NP fines
5		4		F4	2 1 2	ML	SILT			10	90		2.9	40	Gray, wel, fi	ne sand, lo	w plastic fines
6		5			3 4 4 4	SP	Poorly graded SAND						3.4		Gray, wel, fi	ne to mediu	ım sand
8		6			3 6 4 5	SP	Poorly graded SAND						1.1		2 m of heaving Gray, wet, fir Bottom of He Elevation	na to mediu ole 8.1 m	, m sand
		19-E	. Obsc					. [1	Projec					DE-F	depth 4.88 m PID = (Hot) P	)	ed While Drilling: al Klon Detector  Hole Number:

S	oils	ar		CORPS ENGINE	S OF I	DISTRICT ENGINEERS G SERVICES Section	Project:  Orilling Ag	-	ainwi	right,	Alask			W230		on Datum:	Jan 2001
E	X	PL	OR	ATI	10	LOG	Location:		hing: ting:		9,145 23,735				Top of Elevation		n
Hole Nu	mber	, Field	:	Permai AP-7			Driller: Bill Tes	ter						inspector. Steve i	Henslee		
Type of Test			other Auger i	lole [	J Mon	itoring Well   Pi	ezomeler	Depth t		undv .63 m		-		Depth Dri 7.5 m	lled:	Total De 8.1 m	-
Hammer 136 kg		ght:	1 '	t Spoon 3.5 mm	I.D:	Size and Type of 203.2 mm Rock					quipm Soil M				1	Samples: and Drive	
Depth (m) Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 24	488	%Gravei	rain S	%Fines	Max Size (mm)	PID (ppm)	% Water		Descript	ion and Remar	KS
- 1	1	Nor		Grab	ML	SILT with Sand			0		6.4	2.6	6	Brown, fr fines, po		se sand, nonpl	astic (NP)
- 2 - 2	2		F2	3 2 2 2	SM	Silty SAND		9	56	35	38.1	1.4	10	Brown, m	oist, fine s	and, possibly	eand
- 3	3		NFS	223	SP- SM	Poorly graded SANI	D with Silt		В8	12	12.7	1.8	7	Brown, m	oist, fine s	and, NP fines	
- 5	4			6 5 4	5P	Poorly graded SANI	D with Gravel				12.7	1.8	-	e Brown, m coarse sa		unded gravel,	medium to
6 0	5			2 3 4 8	SP	Poorly graded SANI	D with Gravel				19.1	7.8			•	d rounded grave	i, fine to
- 8	6			7 6 7	GP	Poorly graded GRA\ Sand	VEL with				19.1	1.7		Gray, wet, sand, NP		ed gravel, fine	10 coars#
- 9				3										Elevation Groundwa depth 4.53	in (1		_
– 10 NPA Forn May 94 Pi			solete	<del></del>				Projec FAI		HOUS	ing !	JPGR/	ADE -	FTW230		Hole Nur	

		CORE	PS OF	DISTRICT ENGINEERS	Project;				NG UI	PGRAD ska	E - FT	W230		Page 1 of 1
Soils a	nd			Section	Drilling #	_		130	Alask	a Dist	icl			n Datum:
EXPL	_OF	RAT	10	N LOG	Location		orthin asting		208,99 423,96				Top of F	lole
lole Number, Fie AP-23	ld:	Perma AP	anent: 7938		Driller: Bill Te	ster		••				inspector: Steve H	enslee	
ype of Hole: ☐ ☐ Test Pit (※)	other Auger		☐ Moi	nitoring Well	ezomeler	Depth	lo G		lwater m AD	:		Depth Drille 7.5 m	ed:	Total Depth: 8.1 m
ammer Weight: 136 kg		lit Spoon 63.5 mm		Size and Type of 203.2 mm Rock		·	į.		Equip Soil i	ment: Max			Type of S Grab a	amples; and Drive
Lithology Sample Frozen	Frost Class.	Blow Count	Symbol	Classification ASTM: D 2487 or D 24	188	%Gravel	Grain pues%	7	Мах Size (mm)	PID (ppm)	% Water		Descriptio	n and Remarks
Nb	n	Grab	ML	SILT		2		*	×	0.4	%	Brown, frez	en to mois	l, nonplastic (NP) fine
2	F2	8 10 9 7	SM	Silly SAND	·	8	48	44	38.1	0.7	18	Brown, moi	st, fine san	d, NP fines, fill
3 3a	-	2234222	WOOD	Wood Debris						1.2		reinserted s mm, fill	poon and c , slightly p	e to no recovery, Fove an additional 45 lastic fines, 30% wood
	F2	1 4 3 2	SM	Sitty SAND		1	77	22	12.7	0.5		Gray, wel, fir	e sand, N.	P fines
1.1 (1.1 (1.1 (1.1 (1.1 (1.1 (1.1 (1.1		J 8 6 9	SP	Poorly graded SAND					12.7	0.4		0.3 m of heav Gray, wet, su sand		gravel, fine to coarse
0 6		8 9 10 18	SP	Poorly graded SAND v	with Gravel	-			12.7	0.4		0.9 m of heav Gray, wet, sub	•	ravel, fine to coarse
	***************************************											Bottom of Hol Elevation 1	28.6 m Encountere	ed After Drilling: at
Form 19-E					F	Project								Hole Number:

				0	CORPS	S OF E	DISTRICT ENGINEERS	1 '	AMIL ort W					E - FT	W230		Page Date	28 Jan 2001
	S	oils	ar			-	services Section	Drilling Age			<b>(28</b> ) A	laska	Distri	ct	:	Eleval		atum;
	E	XI	oL.	OF	RATI	ON	l LOG	Location:	Nort East	_		9,023 23,763				Top of Elevati		137.2 m
i i	e Nui	nber,	Field		Permar AP-7		, u, — , — , , , , , , , , , , , , , , ,	Driller: Bill Teste	·r		<del></del>				Inspector: Steve H	enslee		
"	e of l			other luger		Mon	iloring Well	D iezometer	epth k		undv .33 m		<del></del>		Depth Drill 7.5 m	ed:	1	Total Depth:
	nmer 136 kg	Weig	jht:	1	it Spoon 63.5 mm	1.D:	Size and Type of 203.2 mm Rock			• •		quipn Soil M				Type of Grab	Sam	
			4083	5.5	=		Classification ASTM: D 2487 or D 2	488	-	rain S	ize	(mm)	<u> </u>			Descrip	tion ar	nd Remarks
Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol			%Gravel	%Sand	%Fines	Мах Size (mm)	PID (ppm)	% Water				
		1	Nbn		Grab	GP	Poorty graded GRA Sand	VEL with				19.1	0.4		1	_		A.C. pavement
_ ,							·								Coarse sa		roune	ed gravel, fine to
-		2	Nbn	F4	23 29 17 10	ML	SILT with Sand		2	21	79		0.3	2	Brown, fro	ozen, fine	sand,	NP fines, possibly fill
- 2  -					10													
<b>–</b> 3		3		F4	2 1 3	ML	SILT with Sand			18	82		0.3	40	Brown, mo	oist, line s	and,	NP fines, possibly filt
-	∞∞				3 4	SP	Poorly graded SAN	iD.							Brown, mo	oist, fine s	and	
- 4		4			2234	SP	Poorly graded SAN	iD				6.4	0.4		Brown and	d gray, we	et, fine	to medium sand
<u> </u>		5			4 5 4 4	SP	Poorly graded SAN	iĐ	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			16.0	0.4		0.9 m of he Gray, wet,	-		sand
7		6			5 5 5 7	SP	Poorly graded SAN	D				12.7	0.4		Gray, wet,	subtound	ded gr	avel, fine to coarse
- - 9															Groundwa depth 4.33	n 129.1 n ter Encou m	n intere	d While Drilling: at on Detector
							v.											
		n 19-		solete	<u> </u>	<u> </u>	L		Projec		POU.	CINC I	VDC D	ADE	FTW230		<u> </u>	Hole Number: AP-7939

W230 GPJ GEO LOG GDT 3/12/01

File:					DISTRICT ENGINEERS	Project:	FAMIL Fort V				PGRAD	)E - FT	W230		Page 1 of 2
0 000	0 0 0 8		ENGIN	EERII	NG SERVICES	D-11: 1-		* 47717						T	Date: 28 Jan 200
Soils	ar	id (	Geol	ogy	Section	Orilling Ag			20	Alask	a Dist	rict		Į.	ation Datum: MSL   other
EXF	)L	OF	RAT	101	N LOG	Location:		thing sting:	): 1,2 4	09,08		1 2			If Hole tion: 137.4 m
ole Number, 1 <i>P-25</i>	Field:		Perma AP-	nent: 7940		Driller: Bill Tes	ter					•	Inspector:	nslee	
pe of Hole:		olher					Depth (	lo Gr	ound	water	:		Depth Drille		Total Depth:
<del></del>		uger l				ezomeler	·		4.69 n	n WD			15.1 m		15.7 m
mmer Weigl 136 kg		1	t Spoon 83.5 mm	i.D:	Size and Type of 203.2 mm Rock				e ol E Acker		ment: Max				f Samples: b and Drive
	4083	ss. .5	E		Classification ASTM: D 2487 or D 24	190	G	rain S	Size	i iii		T	<u> </u>	Descri	ption and Remarks
Lithology Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	NOTHING 2407 OF DE		%Gravel	%Sand	%Fines	Max Size (mm)	PID (ppm)	% Water			4
<u>∞</u> 1	Nbn	(1, )	Grab	ML	SILT		3%	*	*	≥	0.2	1 3/2		en, non	plastic (NP) fines, possi
	•			SM	Silly SAND						ļ		Brown, moi possibly fill	st, fine	to medium sand, NP fine
		NFS	2	SP-	Poorly graded SANI	) with Silt	28	60	12	38.1	0,3	18	Brown, moi	et fina i	ennd San
2			2 2 2 2	SM	and Gravel				'-	30.	0.3	1.0	Didwit, filo	5L IIIE 1	sano.
		S2	2 2 2 3	SM	Silty SAND with Gra	vei	20	53	27	25.4	0.3	9	Brown, mois	st, fine s	and
			3												
Jd.		f											• • • •		
4			4 6 5	SP	Poorly graded SAND					12.7	0.3	_	, Brown, mois	t, fine to	o medium sand
5			3 8 5	SP	Poorly graded SAND					25.4	0.4		Gray, wet, fir	ie to me	dium sand
0.				ļ 									·a -		<del></del>
0 6			5 9	SP	Poorly graded SAND	with Gravel				31.8	0.6		0.5 m of heav	_	
0			7		4								coarse sand	PIONIGE	ed gravel, medium to
0			4 8 13 17	SP	Poorty graded SAND v	with Gravel				25.4	0.7		1.8 m of heavi	ing sand	<b>:</b> ,
0			17										Gray, wet, sui coarse sand	orounde	d gravel, medium to

FY01 REPLACEMENT FAMILY HOUSING

FTW230

	FFE.	E		<b>a</b>			DISTRICT ENGINEERS	1 '				G UPO Alask		- FT	W230	<u> </u>	Page 2 of 2
			1010		ENGINE	EERIN	G SERVICES	Drilling Ager					Distri	rl		<u> </u>	Date: 28 Jan 2001 on Datum:
							Section	☐ Other			KOJ /	аэла	171201	CI .		IXI MS	
	E	X	P.	OF	RAT	ION	LOG	Location:		hing: ting:		9,080 3,751				Top of H Elevatio	
	e Nur 2-25	nber,	Field	:	Perma AP-7			Driller: Bill Teste	·				····	••••	inspector. Steve h		
1 *	e of I Test			other Auger l	Hole (	Mon	itoring Well 🔲 P	De l'iezometer	eplh t		undv 1.69 m	vater: WD			Depth Dril 15.1 m	led:	Total Depth: 15.7 m
	ımer 36 kg	Weig	jht:		it Spoon 63.5 mm		Size and Type	of Bit:				quipn Soil M			L		Samples:
<b></b>			83	1.610			Classification		G	rain S	ize	Ē		Τ			on and Remarks
Depth (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol ·	ASTM: D 2487 or D 2	2488	"Gravel	%Sand	%Fines	Мах Size (mm)	PID (ppm)	% Water		,	
12 13 15 16 17		9.			5 5 10 10 10 20 28 35 38	SP	Poorly graded SAN					25.4	,		1.2 m of hi Gray, wet, sand Bottom of Elevatio Groundwa depth 4.59	eaving sand subrounde Hole 15.7 m n 121.7 m ter Encouni m	d gravel, fine to medium
- 19	THE REAL PROPERTY OF THE PERSON OF THE PERSO	THE THINKS ALL STORMS AND													Marine (		
-20									.								•
NPA May				solete	*			P	rojec FAI		HOUS	ING L	PGR/	1DE - 1	FTW230		Hole Number: AP-7940

F****	····																
		L≌		A			DISTRICT ENGINEERS	Project				NG UF		DE - F	TW230		Page 1 of 2
-	<u> </u>	100	CONO	<u>a</u>	ENGIN	IEERI	NG SERVICES	0-30-					<del></del>	• •			Date: 29 Jan 2001
							/ Section	Drilling A			(38)	Alask	a Dist	rict		Elevat	ion Datum: ISL   other
	E	ΞX	PL	OF	RAI	10	N LOG	Location:		orthin Isting		209,10 423,83				Top of Elevati	
	le Nu P-26	ımber	. Field	i:		anent: -7941		Driller: Bill Te				•	<del></del> .	····	Inspector:		
Ту	pe of	Hole:		other				1 0.11	Depth	to G	round	lwater	•		Steve I		Total Depth:
_	Tes			Auger		<del></del>	<del></del>	zometer		<b>—</b>		m WD			15.1 m		15.7 m
	mme 136 k	r Weig g	gnt:	- 1	lit Spoor 63.5 mm		Size and Type o 203.2 mm Rock			1 .		Equipi Soil I			-		Samples: and Drive
=	_	•	4083	355.	cat		Classification ASTM: D 2487 or D 24	88	-	Grain	Size	Ē		T			ion and Remarks
Depth (m)	Lithology	Sample	Frozen ASTMD	Frost Class. TM 5-822-5	Blow Count	Symbol	.		%Gravel	%Sand	%Fines	Max Size (mm)	PiD (ppm)	% Water			
"		1	Nbn		Grab	GM	Silty GRAVEL with S	and	**	- 38	%	≥  12.7		%	Brown, fro	zen to mo	isl, subrounded gravel,
-		9					2								line sand,	NP lines,	possible fill
- 1																	
		2			3 5 7	SP	Poorly graded SAND						0.5		Brown, mo	ist, mediu	m sand
- 2		1,33			7												•
-	III														. <u>.</u>	٠	THE ME IN MARKET MANY THE THE
<b>-</b> 3		3		NFS	3 5 6	SP-	Poorly graded SAND and Gravel	with Silt	38	56	6	38.1	0.5	3	Brown, mo	ist, subrou	inded gravel, fine sand
-					6 7	0.,,	SUG OLDARI										
- 4	Щ		j														
	0			į	7 10	SP	Poorly graded SAND	with Gravel				19.1	0.4	7	Brown, wet	, subtound	led gravel, fine to coarse
- 5	. 0	4			9										sand		,
	0																
- 6	0	, 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			5 6	SP	Poorty graded SAND y	vith Grave!				19.1			0.3 m of hea		
1	0	5			6 5		, ,					13.1				•	ed gravel, fine to coarse
P	0														sand		
	0	30					Band, of these										
	0	6		ŀ	8 5 6	SP	Poorty graded SAND w	rith Gravel				19.1			f m of heavi	=	Larry of Eastern
Ĭ,	0				0										sand	an o villued	gravel, fine to coarse
	0																
١.	01	7			4 4 7	SP	Roorly graded SAND w	ith Gravel				31.8			1.2 m of heav		
•	اره	<u>354.</u>			11										Gray, wet, su sand	brounded	gravel, fine to coarse
10 PA F	orm	19-E			[			T i	Project							<u></u>	Links Mirror
		v. Ed.	Obsc	olete				['			20110				711maa		Hole Number:

EXPLORATION LOG FTW230 GPJ GEO LOG GDT 3/12/01

1	iii			7			DISTRICT ENGINEERS	Project:					G UP( Alask	RADE	- FT	V230		age 2 of 2 ale: 29 Jan 2001
المــا		<u> </u>			ENGINE	ERIN	G SERVICES	Drilling A						Distri	ct		Elevation	
							Section	Ott									IXI MSL	
	L	Χŀ	L	UK	AH	Or	LOG	Location:		Noni East	_		9,102 23,835		\$		Top of Ho Elevation	the state of the s
	e Nur -26	nber,	Field:		Perman AP-75			Driller: Bill Te	ster					• • • • • •		Inspector: Steve H	enslee	:
	e of l Test		□ D <b>30</b> A	other uger l	lole [	Mon	iloring Well 🔲 Pi	ezometer	Dep	th to		undv .33 m	vater: WD			Depth Drill 15.1 m	ed:	Total Depth:
	nmer 36 kg	Weig		Spli	t Spoon i		Size and Type of	of Bit:	<u></u>				quipn Soil M				Type of Sa Grab an	•
			83	_1	T		Classification			Ge	rain Si		т ==	T		<u> </u>		and Remarks
Depth (m)	Lithology	Sample	Frozen ASTMD 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	ASTM: D 2487 or D 24	488		%Gravel	%Sand	%Fines	Max Size (mm	PID (ppm)	% Water			
<del></del>	· D.	<u> </u>				, , , , , , , , , , , , , , , , , , ,							-		•		···	
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12	Ö	8			6 8	SP	Poorly graded SANI	D with Grave	et				19.1			0.6 m of he	eaving sand	
-	. 0	- 0 · ·			10 9											Gray, wet,	subrounded	gravel, fine to coarse
13	, O.																	
-	0																	
14	0																	
_	0			:	,		<u>-</u>											
4	.0									:								
15	0	9			8 11 9	SP	Poorly graded SANI	D with Grave	a				25.4			0.6 m of he	aving sand	
-	• •				9 15											sand		gravel, fine to coarse
- 16			1													Elevation	Hole 15.7 m n 122.1 m	red While Drilling; at
-																depth 4.33	m	ation Delector
- 17		ŀ											,			, ,		·
.	ļ																	
- 18			1															
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19																		
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-20							•											
		19-E	d Oh	l		<u></u>				oject						COMPANDA	<del> </del>	Hole Number:

	647.	le		<b>-</b>			DISTRICT ENGINEERS	Project:	FAMIL Fort Y				GRADI k≥	E - FT	W230		age 1 of 1
l		(CI)	1000		ENGIN	ERIN	IG SERVICES	Drilling Ag						·		- <del></del>	ate: 29 Jan 2001
	S	oils	s ar	nd (	Geol	ogy	Section	Oth			LOD F	Alaski	a Distri	ICI		Elevation IXI MS	· ·
	E	ΞX	PL	OF	RAT	101	1 LOG	Location:		thing bng:		08,97 23,76				Top of H	
F	lole Ni AP-27		, Field	:	Perma AP-7			Driller: Bill Tes	ster		····		<del></del>	·	Inspector: Steve H	enslee	
	Tes		(C)	other luger		☐ Mor	nitoring Well	ezometer	Depth i		undv 1.26 n			***************************************	Depth Drill	ed:	Total Depth:
-	lamme		ght:		lit Spoon 63.5 mm		Size and Type of	of Bit:				quipr Soil A				Type of Sa	.1
	T	Ī	83	(d) 4D		Ī	Classification		(	Grain S		т ==	T	Ī	<u></u>		and Remarks
	Ceptin (m)	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	ASTM: D 2487 or D 24	488	%Gravel	%Sand	%Fines	Max Size (mm	PIO (ppm)	% Water			Tura Normana
		8 1	Nbn	ш.	- 8	ML	SILT		**	1%	%	Σ	0.8	%°	Brown, fro	zen, nonpla	stic (NP) fines, possible
															-		<u> —</u>
-		2	•	PFS	5 6 6	SM	Silty SAND			80	20	12.7	0.0	6	Brown, mo	ist, fine san	d ·
_	2	-			4	TANK THE TAN											
-															÷	÷	
_	3	3		NFS	2 2 1	SM	Silty SAND			87	13		0.3	5	Brown, mo	ist, fine sand	
-																	·
_	10				13 14	SP	Poorly graded SAND	) with Gravel				38.1	-0.2	3	7 0.3 m of he	aving sand	<u> </u>
	5 0	-			7										Gray, wet, s	ubrounded	gravel, fine to coarse
	°°'																
_	6 0				6	SP	Poorly graded SAND	with Gravel				31.8	0.2		Grav. wet s	bebauardu:	gravel, fine to coarse
-	.0	5			6 7 5 7										sand		g
	700																
	.0	Б			10 8	\$P	Poorty graded SAND	with Gravel				31.8	0.5		1.2 m of hea	rving sand	
- - 1	.0.		Transfer A												Sand Bottom of H Elevation Groundwate depth 4.26 n	ole 8.2 m 128.8 m r Encounter	gravel, fine to coarse ed After Drilling: at tion Detector
- 1(	A Form	10.5															
			: d. Obs	nlete			:		Project		MILE	mo u	oco.	ne e	TWOOD		Hole Number:

Ì	<b>1</b>			7			DISTRICT ENGINEERS	'				G UPO	GRADE	- FT	W230	r	Pag Date	e 1 of 2
	1991 12		: ar		ENGINE	ERIN	services Section	Drilling Ager	ісу:	····			Distri	ct		Elevati	on C	atum:
							V LOG	Other	Nor			9,001				Top of	Hole	
		mber,	, Field	:	Permai			Driller:		ling:	42	3,851	m		Inspector:		on:	137.2 m
Тур				olher	AP-7			- 1	r eplh t						Steve H Depth Dril		T	Total Depth:
Han	nmer	Wei		Spli	t Spoon I		Size and Type o		_	Туре		quipn			14.9 m	Type of		
1	36 k	9	8	.1	3.5 mm	Τ	203.2 mm Rock I	Bit	T G	A Irain S		Soil M	lax	· T	<del> </del>	L		Orive
Septh (m)	Lithology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	ASTM: D 2487 or D 24	88	%Gravel	%Sand	%Fines	Max Size (mm)	PID (ppm)	% Water		Descript	on a	nd Remarks
	₩	1	Nbn	U.F-	Grab	ML	SILT	·····	87	8	%	2	1.6	38	Brown, fro	ozen, nonp	lasti	fines (NP), possib
	<b>**</b>																	
- 1		2		F4	3 3 3 3 3	MŁ	SILT with Sand			26	74		0.9	16	Brown, m	oist, fine si	and,	NP fines, possibly
3		3		<b>S2</b>	3355	SM	Silty SAND	:		87	13		1.6	6	Brown, m	oist, fine s	ind	
4		4			4 4 3 2	SP	Poorly graded SAND	with Gravel							Brown, w	el, fine to m	Jedíu	m sand
2	. •						enger											
6	0	5			3 3 6 8	SP	Poorly graded SAND	with Gravel				19.1				_		avel, fine to coarse
7	0000														sand			
8	000	6			4 6 20 40	SP	Poorly graded SAND	with Gravel				38.1		·	0.6 m of he Gray, wet, sand	-		avel, fine to coarso
	00000	7			21 25 25 27	SP	Poorly graded SAND	with Gravel				44,5			1.2 m of he Gray, wel, sand	•		avel, fine to coarse
o PA	Form	n 19-l						I F	rojec	t:							 T	Hole Number:
				solete				ľ			HOUS	ING L	IPGRA	DE -	FTW230			AP-7943

	F				CORPS	S OF	DISTRICT ENGINEERS	Project:	FAMIL Fort V					-FN	N230		age 2 of 2
	So	oils	s ar		ENGINE	ERIN	G SERVICES Section	Drilling A	gency:			Vaska		cl .	· · · · · · · · · · · · · · · · · · ·	<del>,</del>	n Datum:
							<b>I</b> LOG	Location:	Nor	thing ting:		09,001 23,851		:	• •	Top of H Elevation	ole
	- Nur 28	mber	, Field	:	Permar AP-7			Driller: Bill Te	ster				, 1		Inspector: Steve H	enslee	
	e of l Test			other Luger H	lole [	] Mon	itoring Well	 ezometer	Depth I		oundv 4.72 <i>n</i>				Depth Drill 14.9 m	ed:	Total Depth: 15.5 m
	nmer 36 kg	Weig g	ght:	1	t Spoon I i3.5 mm	I.D:	Size and Type of 203.2 mm Rock					quipn Soil M			·	Type of S Grab a	amples: nd Drive
Depth (m)	Uthology	Sample	Frozen ASTM D 4083	Frost Class. TM 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 24	188	%Gravel	%Sand	T	Max Size (mm)	PtD (ppm)	% Water		Descriptio	n and Remarks
-11		8		The state of the s	10 11 13 8	S.P.	Poorly graded SANI	<b>)</b> .				15.2	0.7			eaving sand subrounde	l gravel, fine to coarse
13																·	
15		9			9 7 9	SP	Poorty graded SANC	1				12.7	1.1		0.6 m of he	=	nded gravel, fine to
16	-				14										Coarse san Bottom of I Elevation Groundwat depth 4.72	id Hole 15.5 m n 121.6 m ter Encount m	
18													V.*		:		
9																	
20 PA J	OIM	19-E	•						Projec	<u></u>							Hole Number:
			d. Obs	solele							HOUS	ING U	PGRA	DE - F	-TW230		AP-7943

		=	简	<b>1</b>			DISTRICT	Project:					G UPG Alaska	RADE	- FT\	W230	-	age 1 of 2
	elel Sc	oils	ிய ar		ENGINE	ERIN	services Section	Drilling A	gen					Distric	<b></b>		Elevation  XI MSt	
						•-	I LOG	Location		Norti East			9,161 3,834		· · ·		Top of Ho	ole
1		nber,	Field		Perman		······································	Driller:								Inspector:		
-	p.29 be of l	Hole:		other	AP-79	/44		Bill Te		pth to	Gro	undw	raler:			Steve He Depth Drille		Total Depth:
	Test			<del></del>				ezometer		— Т		.00 m				15.1 m	Tuna of Co	15.7 m
1	mmer 136 ki	Weig		1 1	it Spoon I 63.5 mm	.U:	Size and Type of 203.2 mm Rock						quipm Soil M		: 		Type of Sa Grab ar	ad Drive
Depth (m)	Lithology	Sample	Frozen ASTM D 4083	st Class. 5-822-5	Blow Count	Symbol	Classification ASTM: D 2487 or D 24	488		%Gravel g	Rain Sin Sin Sin Sin Sin Sin Sin Sin Sin S	%Fines	Max Size (mm)	PID (ppm)	Water		Description	n and Remarks
ă	<u>₹</u>	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Npu SSA	Frost TM 5-	∯ Grab	ML Syl	SILT			<u>%</u>	8%	12%	Ma	1.9	*	Brown, from	zen, nonpla	stic (NP) fines, possibly
·				4.												1214		
		2		F4	3 3 3	ML	SILT				7	93		0.9	31	Brown, mo	ist, line san	d, possibly fill
	$\otimes$														:			
- 3		3		NFS	8 8 11 8	GP	Poorly graded GRA Sand	VEL with		51	45	4	38.1	1.4	2	Brown, mo coarse san		ided gravel, fine and
-					_			_			:							
- 5		4			5 5 3 3	SP	Poorly graded SAN	D					9.7	0.9	<u>.</u>	medium sa		nded gravel, line to
- 6		5		<b>S2</b>	1 2 2 3	SP	Poorly graded SAN	D			96	4		0.2	27	Gray, wet, (	line sand	
7		6			3 10 10	GP	Poorly graded GRA Sand	VEL with					25.4	0.6		0.6 m of he		
- 8		<u> </u>			10	•								,		Brown, wet		ed gravel, line to
- 9		7	;		1/300 mm 1 1	GP	Poorly graded GRA Sand	VEL with					19.1	1,1		1.5 m of he Gray, wet, s	•	l gravel, fina to medium
		n 19-		L				·	  P	rojec						ETW230		Hole Number:

ALASKA DISTR	RS Fort	IILY HOUSING UPG Wainwright, Alaska		Page 2 of 2 Date: 30 Jan 2001
Soils and Geology Sect	ICES	XX Alaska I	District	Elevation Datum:  ON MSL  other
EXPLORATION LO	G Lection: No	orthing: 1,209,161 / asting: 423,834 /	· ·	Top of Hole Elevation: 137.6 m
Hole Number, Field: Permanent:  AP-29 AP-7944	Driller: Bill Tester		Inspector: Steve He	·
Type of Hole:  other  Monitoring W		to Groundwater: 5.00 m WD	Depth Drille	d: Total Depth:
1	and Type of Bit:	Type of Equipme		Type of Samples:  Grab and Drive
Classifica	tion 2487 or D 2488	Grain Size		Description and Remarks
Depth (m) Lithology Sample Frozen ASTM D 4083 Frost Class. TM 5-822-5 Blow Count Symbol	2461 Of U 2400	%Sand Size (mm) %Size (mm)	PIO (ppm) % Water	
-11 -13 -13 -14 -15 -15 -20 SP Poorty 9	raded SAND	12.7	heaving san	ollect sample at 12 m due to d
- 16 8 721 15 18			Gray, wet, su sand Bottom of Ho Elevation Groundwater depth 5.00 m	obrounded gravel, fine to medium ole 15.7 m 121.9 m Fincountered While Drilling: at
17			PID = (Hot) P	holo lonization Detector
- 18				
19 20				
NPA Form 19-E	Projec	hct.		Hole Number:
May 94 Prev. Ed. Obsolete		AMILY HOUSING UP	GRADE - FTW230	AP-7944

i i-hertel access i <del>st a la</del> l.	A DISTRICT OF ENGINEERS	Project:	FAMIL Fort W					- F7N	V230		Page 1 of 2
ENGINEER	RING SERVICES	Drilling Ag		١.		laska				<del>,</del> .	Date: 31 Jan 2001 on Datum:
Soils and Geolog	•	Oth	-		UO 7	aska	DISHIN	<i>-</i> l	·	1283 M	
EXPLORATION	N LOG	Location:		hing: ting:		9,096 3,943		:		Top of Elevation	
Hole Number, Field: Permanen  AP-30 AP-7945	=	Driller: Bill Tes	ter						Inspector: Steve H	ensiee	
Type of Hole:  other Test Pit 120 Auger Hole	Monitoring Well   P	iezometer	Depth to		undw .00 m				Depth Drill 15,1 m	eđ:	Total Depth: 15.7 m
Hammer Weight: Split Spoon I.D. 136 kg 63.5 mm	Size and Type of 203,2 mm Rock					quipm Soil M				• •	Samples: and Drive
80 83-0 E	Classification ASTM: D 2487 or D 2	MAR	G	rain S	ize	(mm)	_			Descript	ion and Remarks
Depth (m) Lithology Sample Frozen ASTM D 4083 Frost Class. TM 5-822-5 Blow Count	200 E	.400	%Gravel	%Sand	%Fines	Max Size (mm)	PID (ppm)	% Water		:	
	ML SILT			*	8	6.4	3.6	*			to moist, coarse sand, s, possibly fill
F2 6	Sity SAND			55	45		2.2	7	Brown, me	oist, line s	and, NP fines, possibly fill
2 F2 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5											
						!					
	P- Poorly graded GRA and Sand	AVEL with Silt	58	37	5	50.8	2.6	2	Brown, me coarse sa		ounded gravel, fine to
4 3						:			THE POST OF LABORATORY		#
10 20 15 15 12	SP Poorly graded SAN	ID with Gravel	! !			25.4	6.2	_	Brown, mo coarse sa		ngular gravel, fine to
0											
5 5 5 11 8	SP Poorly graded SAN	D				12.7	1.9		Gray, wet,	subangul	ar gravel, fine to coarse
7									·		
15 22	P Poorty graded SAN	D with Gravel				31.8			0.3 m of he	eaving sar	nd .
15 S C 6 22 22 22 20 S			-						Gray, wet, sand, NP f		ed gravel, fine to coarse
7   11   S	P Poorty graded SAN	D with Gravel				38.1	0.6			•	at gravel, fine to coarse
-10 0									sand		
NPA Form 19-E			Projec		יייטא	SING I	IPGP:	ADF -	FTW230		Hole Number.

<b>6</b>	ř	Æ		A P				DISTRICT ENGINEERS	Project				IG UP		E-FN	W230		Page 2 of 2
	9 0		0 3 10	<u></u>	_ E	NGINE	ERIN	G SERVICES	Delling A						·	<del></del>		)ale: 31 Jan 200
	S	oils	s a	nd	G	eolo	gy	Section	Drilling Ag			LXSJ A	Alaska	Uistn	ict		Elevatio	n Datum: SL
	E	Χ	PL	0.	R	ATI	01	I LOG	Location:		rthing sting		209,096 23,943				Top of H	
Hole AP		mber	r, Field	d:		Perman AP-79			Driller: Bill Te	ster						Inspector: Steve H	ensiee	
Туре	of	Hole	: 🗆	oth	er_					Depth	to G	ound	water:			Depth Drill	ed:	Total Depth:
ו ם				Aug				itoring Well 🔲 Pie	ezometer			5.00 r	n WD			15.1 m		15.7 m
	mer 36 kg	Wei	ght:			Spoon I 3.5 mm	.D:	Size and Type o 203.2 mm Rock			1		Equipn Soil M				Type of S Grab a	amples: nd Drive
			6083	35	ις.	Œ		Classification ASTM: D 2487 or D 24	88		Grain	Size	(mm)				Descriptio	n and Remarks
Depth (m)	Lithology	Sample	Frozen ASTM 0.4083	Frost Cla	TM 5-822-5	Blow Count	Symbol	7.01111. 15 2407 13 15 24	••	%Gravel	%Sand	%Fines	Max Size (mm)	PIO (ppm)	% Water			
	0.					7 13 8	SP	Poorly graded SAND	) with Grave				19.1			Q.6 m of he	aving sand	
D.	0					8	,				1					Gray, wet, sand	subrounde	d gravel, fine to coan
12	000	9				12 12 14	SP	Poorly graded SAND	with Gravel				31.8	0.5		Gray, wet, :	Subrounder	d gravel, line to coars
139	0	a 4 <u>39</u>				15												
14	0.															Unable to c heaving sa		ple at 13.6 m due to
	000																	
	0.0	10				13 13 21 21	SP	Poorly graded SAND	with Gravel				50.8	0.6		Gray, wet, s sand	subrounded	f gravel, fine to coars
6																Groundwate depth 5.00 r	i 122.0 m er Encounti m	ered While Drilling: a
7																		
8																		
9																	:	
0																• .	٠.	
AF		19-E	d. Ob							Projec	t				L	,,, <u>-</u>		Hole Number:

## APPENDIX B

LABORATORY RESULTS
of
SELECTED SOIL SAMPLES

01-369.08
Family Housing Upgrade (FTW230)
Fort Wainwright, Alaska
Laboratory Testing Summary

Sample:	Depth (Ft.):	Soil Class:	Frost Class: %	6 Moisture:
AP-1/2	4.5-6.5	SM	F 2, 7.7%02mm	30.0
AP-1/4	14.5-16.5	SM	F 2, 7.3%02mm	27.3
AP-2/1	0.0-2.0	ML	F 4, 23,2%02mm	13.9
AP-2/3	9.5-11.5	SP	NFS*, 1.4%02mm	2.0
AP-4/3	9.5-11.5	SP-SM	NFS*, 1.2%02mm	4.3
AP-5/2	4.5-6.5	ML	F 4, 44.0%02mm	25.9
AP-5/3	7.5-9.5	GW-GM	PFS**, 1.9%02mm	1.8
AP-6/2	4.5-6.5	ML	F 4, 19.3%02mm	21.4
AP-6/3	9.5-11.5	GP-GM	PFS**, 2.1%-,02mm	2.4
AP-7/2	4.5-6.5	ML	F 4, 14.3%02mm	14.8
AP-7/3	9.5-11.5	GP-GM	NFS*, 1.4%02mm	1.4
AP-8/2	4.5-6.5	SM	F 2, 12.4%02mm	9.3
AP-8/3	9.5-11.5	GW-GM	PFS**, 2.5%02mm	1.9
AP-9/3	9.5-11.5	ML	F 4, 23.7%02mm	18.6
AP-10/2	4.5-6.5	ML	F 4, 16.7%02mm	23.9
AP-10/3	9.5-11.5	GP	NFS*, 0.6%-,02mm	1.9
AP-11/2	4.0-6.0	ML	F 4, 10.9%02mm	14.5
AP-11/3	9.0-11.0	GP-GM	NFS*, 1.5%02mm	1.4
AP-12/3a	9.5-11.5	ML	F 4, 4.0%02mm	10.8
AP-13/3	9.5-11.5	SM	S 2, 4.5%02mm	20.1
AP-14/2	4.5-6.5	SM	F 2, 10.1%02mm	11.3
AP-14/3b	9.5-11.5	SW-SM	NFS*, 2.3%02mm	3.9
AP-15/2	4.5-6.5	SM	F 2, 11.8%02mm	22.1
AP-15/3	9.5-11.5	SM	F 2, 10.7%02mm	28.0
AP-16/2	4.5-6.5	SM	F 2, 10.4%02mm	11.9
AP-16/3	9.5-11.5	SM	F 2, 7.8%02mm	27.7
AP-17/2	4.5-6.5	ML	F 4, 13.2%02mm	16.5
AP-17/3	9.5-11.5	SM	F 2, 12.9%02mm	16.4
AP-18/3	9.5-11.5	SP	NFS*, 1.1%02mm	2.0
AP-19/2	4.5-6.5	SM	S 2, 5.9%02mm	13.3
AP-19/3	9.5-11.5	SP	NFS*, 1.9%02mm	2.9
AP-20/2	5.0-7.0	ML	F 4, 58.4%02mm	34.3
AP-20/3	10.0-12.0	ML	F 4, 9.6%02mm	22.4
AP-21/3	9.5-11.5	ML	F 4, 37.3%02mm	38.3
AP-21/4	14.5-16.5	MŁ	NFS*, 0.0%02mm	40.0
AP-22/2	4.5-6.5	SM	F 2, 7.3%02mm	10.4
AP-22/3	9.5-11.5	SP-SM	NFS*, 1.7%02mm	7:3
AP-23/2	4.5-6.5	SM	F 2, 10.7%02mm	18.4
AP-23/4	14.5-16.5	SM	F 2, 11.0%02mm	27.6
AP-24/2	4.5-6.5	ML	F 4, 12.4%02mm	2.3
AP-24/3	9.5-11.0	ML	F 4, 31.9%02mm	39.9
AP-25/2	4.5-6.5	SP-SM	NFS*, 2.4%02mm	17.9
AP-25/3	9.5-11.5	SM	S 2, 5.8%02mm	9.0
AP-26/3	9.5-11.5	SP-SM	NFS*, 2.8%02mm	3.4
AP-27/2	4.0-6.0	SM	PFS**, 5.6%02mm	5.9
AP-27/3	9.0-11.0	SM	NFS*, 3.0%02mm	5.6
AP-28/2	4.0-6.0	ML	F 4, 14.7%02mm	15.8

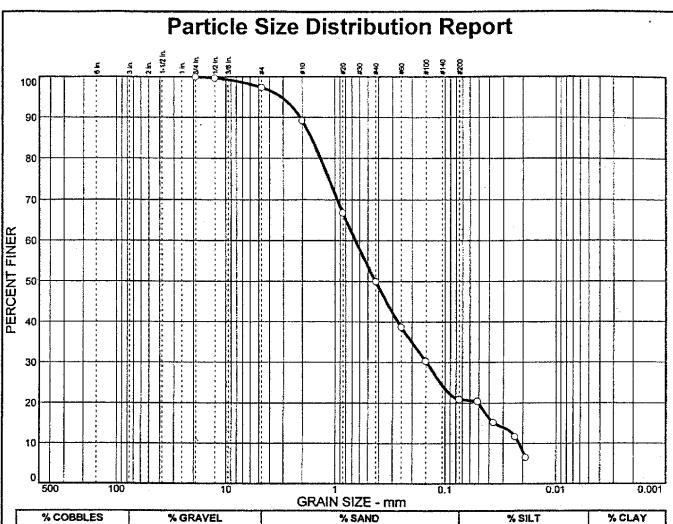
**FY01 REPLACEMENT FAMILY HOUSING** 

FTW230

Sample:	Depth (Ft.):	Soil Class:	Frost Class:	% Moisture:
AP-28/3 AP-29/2 AP-29/3 AP-30/2 AP-30/3 AP-3/6 AP-5/5 AP-13/5	9.0-11.0 4.5-6.5 9.5-11.5 4.5-6.5 9.5-11.5 25.0-27.0 19.5-21.5 19.5-21.5	SM ML GP SM GP-GM GP GW	S 2, 3.1%02mm F 4, 36.6%02mm NFS*, 1.4%02mm F 2, 7.0%02mm PFS**, 1.6%02mm PFS**, 1.8%02mm PFS**, 1.7%02mm	6.2 30.9 1.8 7.0 2.0 7.9 7.5
AP-11/6 AP-17/4b AP-12/4 AP-29/5	24.0-26.0 14.5-16.5 14.5-16.5 19.5-21.5	GW GP GP SM SP	PFS**, 1.6%02mm NFS*, 1.4%02mm PFS**, 2.2%02mm S 2, 5.5%02mm S 2, 3.2%02mm	6.6 7.1 9.9 33.3 27.2

<sup>\*</sup>Non Frost Susceptible

<sup>\*\*</sup>Possibly Frost Susceptible



		O14 2014 O1575 - 111111		
% COBBLES	% GRAVEL	% SANO	% SILT	% CLAY
0.0	2.6	76.5	20.9	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
.75 in. .5 in. #4 #10 #20 #40 #60 #100 #200	100.0 99.7 97.4 89.2 66.8 49.9 38.7 30.3 20.9		

	Soil Description	
Silty sand.		
7.7% finer than 0	.02mm.	
Frost Class F 2.		
PL= NP	Atterberg Limits LL= NV	PI=
D <sub>85</sub> = 1.65 D <sub>30</sub> = 0.147 C <sub>U</sub> = 30.14	Coefficients D60= 0.654 D15= 0.0360 Cc= 1.53	D <sub>50</sub> = 0.427 D <sub>10</sub> = 0.0217
USCS= SM	Classification AASHTO	)=
	<b>Remarks</b>	
Natural Moisture	30.0%.	
Coal Present In S	ample.	

Sample No.: 2 Location:

Source of Sample: AP-1

Date: 2/26/01 Elev./Depth: 4.5-6.5

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Client: U.S. Army Engineer District, Alaska

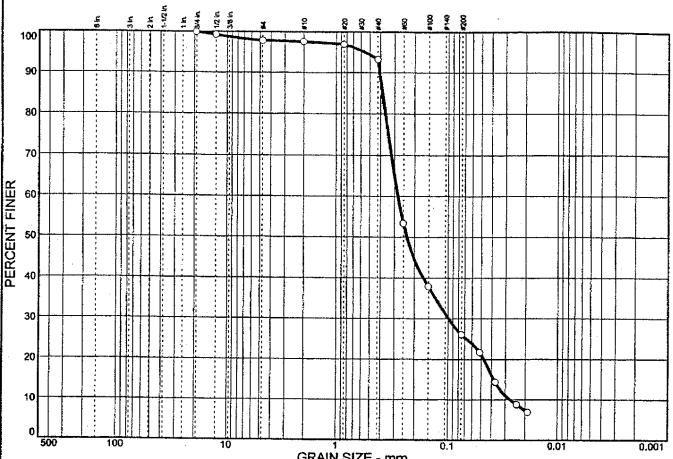
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate





OTAMA OIZE - IIIII				
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	2.1	71.8	26.1	· · · · · · · · · · · · · · · · · · ·

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
.7500 in.	100.0		
.5 in. #4	99.3 97.9		•
#10 #20	97.6		
#40	97.0 93.3		. '
#60 #100	53.4 37.9		
#200	26.1		. :
	l '	· .	
		]	
		[	
1			

	Soil Description	
Silty sand.		•
7.3% finer than (	).02mm.	
Frost Class F 2.	•	
PL= NP	Atterberg Limits LL= NV	P =
D <sub>85</sub> = 0.386 D <sub>30</sub> = 0.0988 C <sub>U</sub> = 10.23	Coefficients D60= 0.279 D15= 0.0383 C <sub>C</sub> = 1.28	D <sub>50</sub> = 0.233 D <sub>10</sub> = 0.0273
USCS= SM	Classification AASHT	O=
Natural Moisture	Remarks 27.3%.	
Sticks And Organ	nics Present In Sampl	e.

Sample No.: 4 Location:

Source of Sample: AP-1

Date: 2/26/01

Elev./Depth: 14.5-16.5

A.W. Murfitt Company

Client: U.S. Army Engineer District, Alaska

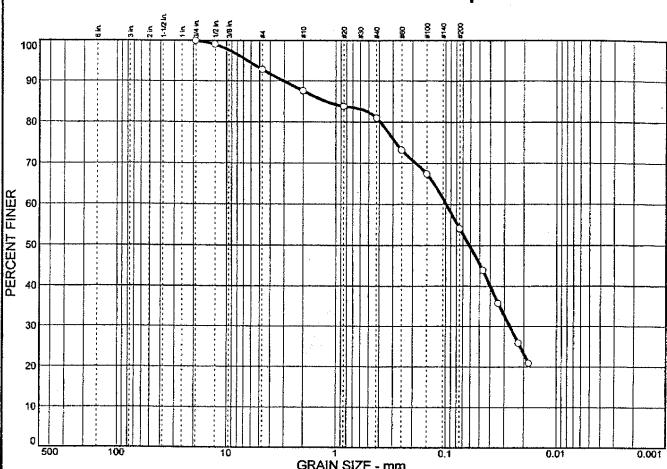
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate





CIO di COLLE - TIMA				
% COBBLES	% GRAVEL	% SAND	% SILT	%CLAY
0.0	7.1	38.8	54.1	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
.75 in. .5 in. #4 #10 #40 #60 #100 #200	100.0 99.1 92.9 87.6 83.8 81.0 73.2 67.4 54.1		

	Soil Description	
Sandy silt. 23.2% finer than Frost Class F 4.	0.02mm.	
PL= NP	Atterberg Limits LL= NV	PI=
D <sub>85</sub> = 1.22 D <sub>30</sub> = 0.0268 C <sub>U</sub> =	Coefficients D60= 0.0993 D15= Cc=	D <sub>50</sub> = 0.0613 D <sub>10</sub> =
USCS= ML	Classification AASHT0	)=
Natural Moisture	<u>Remarks</u> 13.9%.	

Sample No.: 1 Location:

Source of Sample: AP-2

Date: 2/26/01

Elev./Depth: 0.0-2.0

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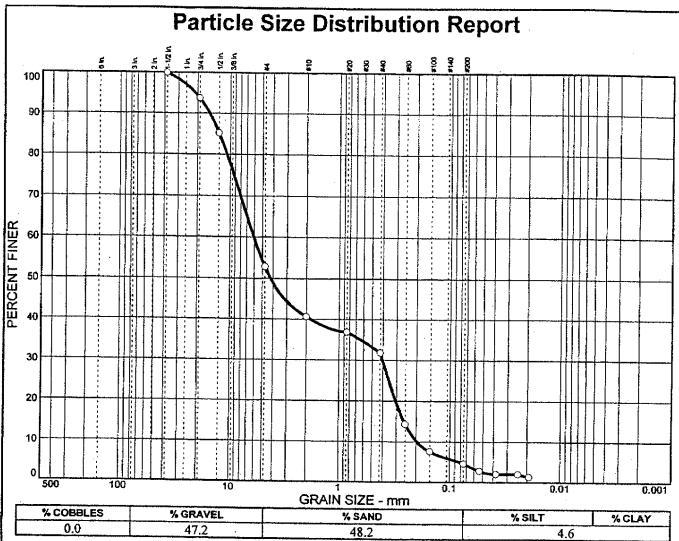
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Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate



,	·····			
	SIEVE	PERCENT	SPEC.	PASS?
l	SIZE	FINER	PERCENT	(X=NO)
	1.5 in. .75 in. .5 in. #10 #20 #40 #60 #100 #200	100.0 93.7 85.2 52.8 40.6 36.9 31.8 14.3 7.6 4.6		

1.4% finer than Non Frost Susce		
PL= NP	Atterberg Limits LL= NV	PI=
D <sub>85</sub> = 12.6 D <sub>30</sub> = 0.405 C <sub>u</sub> = 30.79	Coefficients D60= 6.04 D15= 0.257 Cc= 0.14	D <sub>50</sub> = 4.22 D <sub>10</sub> = 0.196
USCS= SP	Classification AASHT	O=
Remarks Natural Moisture 2.0%		

Sample No.: 3 Location:

Source of Sample: AP-2

Date: 2/26/01 Elev./Depth: 9.5-11.5

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(no specification provided)

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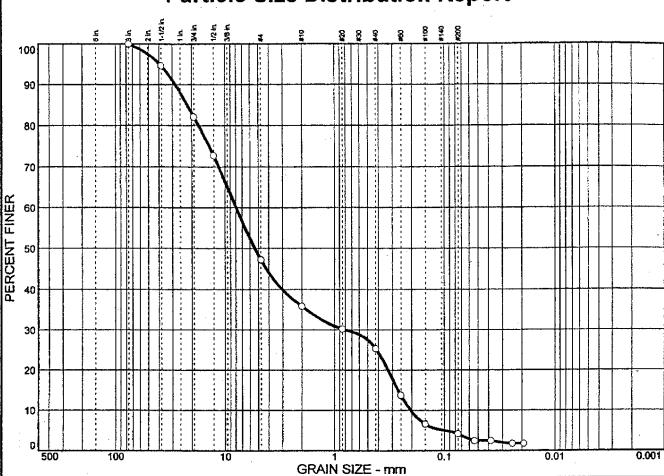
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Fort Wainwright, Alaska

Project No: 01-369.08

**Plate** 





 % COBBLES
 % GRAVEL
 % SAND
 % SILT
 % CLAY

 0.0
 52.8
 43.0
 4.2

SIEVE	PERCENT	SPEC.	PASS?
SIZE	FINER	PERCENT	(X=NO)
3 in. 1.5 in. .75 in. .5 in. #10 #20 #40 #60 #100	82.1 72.7 47.2 35.8 30.2 25.3		

	<del> </del>			
	Soil Description			
Poorly graded gr	avel with sand.			
1.8% finer than (	0.02mm.	•		
Possibly Frost St	usceptible.	**		
-	Atterberg Limits			
PL= NP	LL= NV	PI=		
	Coefficients			
D <sub>85</sub> = 21.8	D <sub>60</sub> = 7.95	D <sub>50</sub> = 5.40		
D <sub>30</sub> = 0.804 C <sub>u</sub> = 39.07	$D_{15} = 0.266$	$D_{10}^{-} = 0.204$		
C <sub>u</sub> = 39.07	C <sub>C</sub> = 0.40			
	Classification			
USCS= GP	AASHT	O=		
Remarks				
Natural Moisture 7.9%.				
- 1000000 CO - 1 CO				

(no specification provided)

Sample No.: 6 Location:

Source of Sample: AP-3

Date: 2/26/01 Elev./Depth: 25.0-27.0

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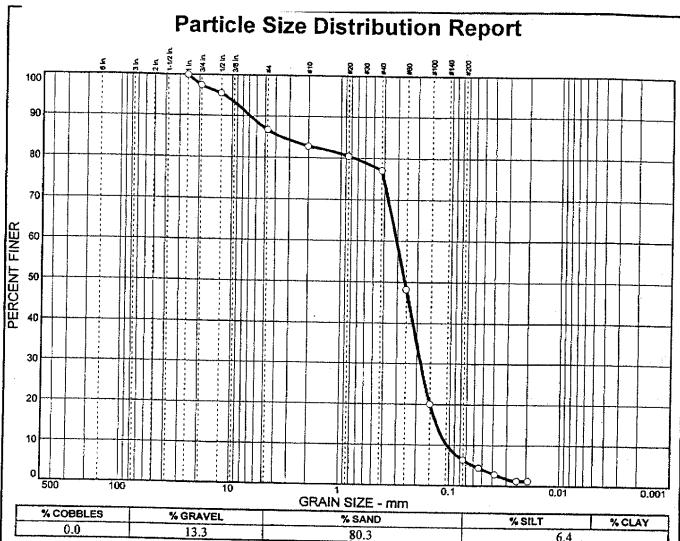
Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate -



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1 in. .75 in. .5 in. #4 #10 #20 #40 #60 #100 #200	100.0 97.5 95.5 86.7 82.7 80.5 77.1 48.2 20.0 6.4		
* (no spe	cification provided	i)	

Poorly graded sar 1.2% finer than 0 Non Frost Suscep	.02mm.		
PL= NP	Atterberg Limits	Pl≃	
D <sub>85</sub> = 3.56 D <sub>30</sub> = 0.184 C <sub>u</sub> = 2.94	Coefficients D <sub>60</sub> = 0.308 D <sub>15</sub> = 0.130 C <sub>C</sub> = 1.05	D <sub>50</sub> = 0.258 D <sub>10</sub> = 0.105	
USCS= SP-SM	Classification AASHT	·O=	
Remarks Natural Moisture 4.3%. Depth On Lab Request Form Does Not Match Depth On Bag.			

Sample No.: 3 Location:

Source of Sample: AP-4

Date: 2/26/01 Elev./Depth: 9.5-11.5

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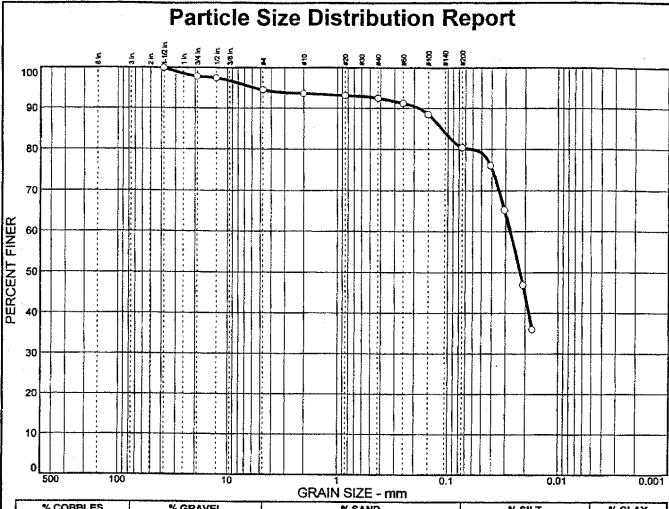
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Fort Wainwright, Alaska

Project No: 01-369.08

**Plate** 



OT WIT OLE - THE				
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	5.5	14.0	80,5	

	Soil Description		
Silt with sand. 44.0% finer than Frost Class F 4	0.02mm.		
PL= NP	Atterberg Limits LL= NV	Pl=	
D <sub>85</sub> = 0.113 D <sub>30</sub> = C <sub>u</sub> =	Coefficients D60= 0.0274 D15= C <sub>c</sub> =	D <sub>50</sub> = 0.0223 D <sub>10</sub> =	
USCS= ML	Classification AASHT	·O=	
Natural Moisture	Remarks Natural Moisture 25.9%.		

Sample No.: 2 Location: Source of Sample: AP-5

Date: 2/26/01 Elev./Depth: 4.5-6.5

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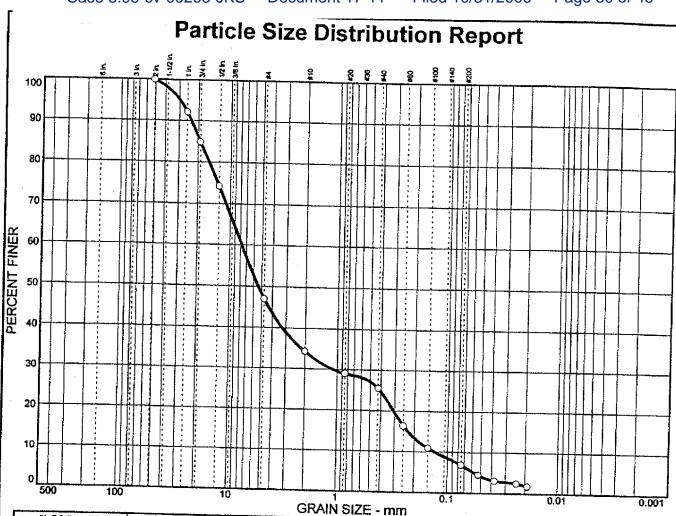
Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate



% COBBLES % GRAVE!	
7/ SANO	
0.0 53.0 %SAND %SILT %CL	AY.
0.0 53.0 40.1	

İ	SIEVE	PERCENT	SPEC.*	PASS?
	SIZE	FINER	PERCENT	(X=NO)
	2 in. 1 in. .75 in. .5 in. #10 #20 #40 #60 #100 #200	100.0 92.2 84.8 74.2 47.0 34.3 29.0 25.5 16.4 10.9 6.9		

Well-graded graded 1.9% finer than ( Possibly Frost St		
PL= NP	Atterberg Limits LL= NV	PI=
D <sub>85</sub> = 19.2 D <sub>30</sub> = 1.10 C <sub>u</sub> = 59.54	Coefficients D <sub>60</sub> = 7.77 D <sub>15</sub> = 0.227 C <sub>c</sub> = 1.20	D <sub>50</sub> = 5.39 D <sub>10</sub> = 0.130
USCS= GW-G	Classification M AASHT	O=
Natural Moisture	Remarks 1.8%.	

Sample No.: 3 Location:

Source of Sample: AP-5

Date: 2/26/01 Elev./Depth; 7.5-9.5

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(no specification provided)

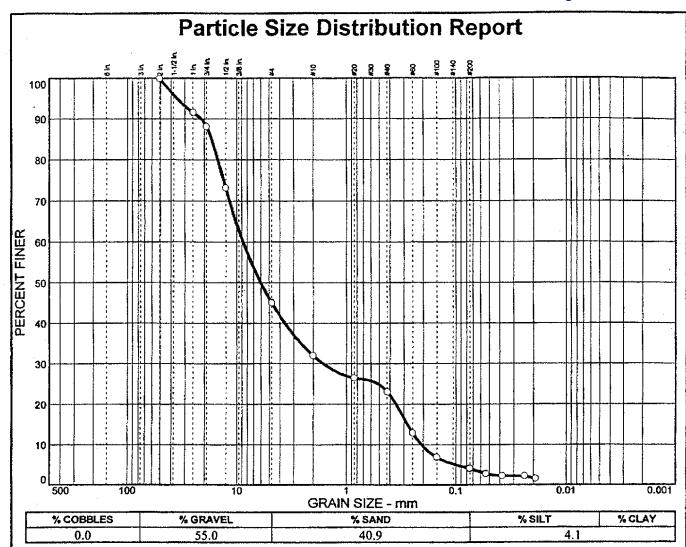
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Fort Wainwright, Alaska

Project No: 01-369.08

Plate



SIZE         FINER         PERCENT         (X=NO)           2 in.         100.0         In.         91.6         .75 in.         88.1
1 in. 91.6 .75 in. 88.1
.5 in. 73.2 #4 45.0 #10 32.0 #20 26.5 #40 23.1 #60 12.9 #100 6.9 #200 4.1

Soil Description Well-graded gravel with sand. 1.7% finer than 0.02mm. Possibly Frost Susceptible.			
PL= NP	Atterberg Limits	§ Pl=	
D <sub>85</sub> = 17.1 D <sub>30</sub> = 1.62 C <sub>U</sub> = 42.23	Coefficients D60= 8.74 D15= 0.279 Cc= 1.46	D <sub>50</sub> = 6.00 D <sub>10</sub> = 0.207	
USCS= GW	<u>Classification</u> AASH	TO=	
Remarks Natural Moisture 7.5%.			

Sample No.: 5 Location:

Source of Sample: AP-5

Date: 2/26/01 Elev./Depth: 19.5-21.5

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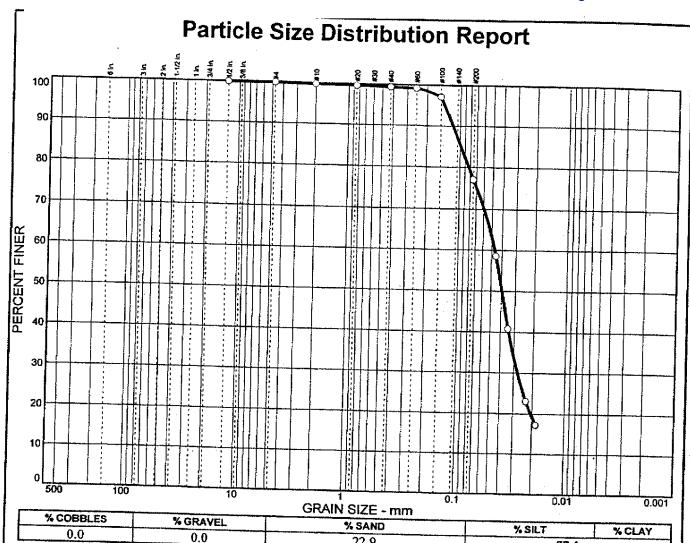
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Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate



22.9

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
.5 in. #44 #10 #20 #40 #60 #100 #200	100.0 100.0 99.8 99.6 99.4 99.2 97.2 77.1		

	Soil Description	
Silt with sand. 19.3% finer than Frost Class F 4.	ı 0.02mm.	, :
PL= NP	Atterberg Limits LL= NV	Pl=
D <sub>85</sub> = 0.0983 D <sub>30</sub> = 0.0277 C <sub>u</sub> =	<u>Coefficients</u> D <sub>60</sub> = 0.0469 D <sub>15</sub> = C <sub>c</sub> =	D <sub>50</sub> = 0.0397 D <sub>10</sub> =
USCS= ML	Classification AASHTO	)=
Natural Moisture	<u>Remarks</u> : 21.4%.	

Sample No.: 2 Location:

Source of Sample: AP-6

Date: 2/26/01 Elev./Depth: 4.5-6.5

77.1

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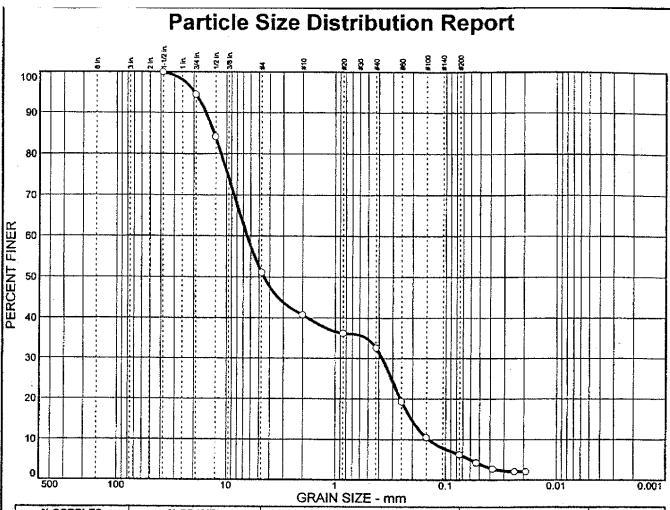
(no specification provided)

Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230) Fort Wainwright, Alaska

Project No: 01-369.08

Plate



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	48.9	44.8	6.3	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1.5 in. .75 in. .5 in. #40 #20 #40 #60 #100 #200	100.0 94.5 84.1 51.1 40.7 36.2 32.6 19.3 10.5 6.3		

Poorly graded gr 2.1% finer than ( Possibly Frost S		d.
PL= NP	Atterberg Limits LL= NV	PI=
D <sub>85</sub> = 13.1 D <sub>30</sub> = 0.375 C <sub>u</sub> = 45.13	Coefficients D60= 6.44 D15= 0.205 C <sub>C</sub> = 0.15	D <sub>50</sub> = 4.53 D <sub>10</sub> = 0.143
USCS= GP-GI	Classification AASHT	'O=
Natural Moisture	Remarks 2.4%.	

Sample No.: 3

Source of Sample: AP-6

Date: 2/26/01

Location:

Elev./Depth: 9.5-11.5

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(no specification provided)

Client: U.S. Army Engineer District, Alaska

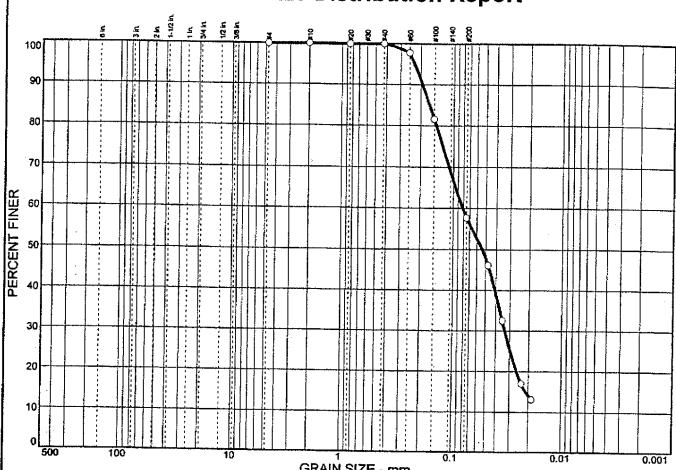
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Fort Wainwright, Alaska

Project No: 01-369.08

Plate





PERCENT	SPEC.*	PASS?
FINER	PERCENT	(X=NO)
100.0 100.0 100.0 100.0 97.8 81.6 57.7		
	FINER 100.0 100.0 100.0 100.0 97.8 81.6	FINER PERCENT  100.0 100.0 100.0 100.0 97.8 81.6

	Soil Description	-
Sandy silt.		
14.3% finer than	0.02mm.	·
Frost Class F 4.		
PL= NP	Atterberg Limits LL= NV	Pl≃
D <sub>85</sub> = 0.165 D <sub>30</sub> = 0.0333 C <sub>u</sub> =	Coefficients D60= 0.0816 D15= 0.0211 Cc=	D <sub>50</sub> = 0.0538 D <sub>10</sub> =
USCS= ML	Classification AASHT	D=
Natural Moisture	Remarks 14.8%.	
	14.3% finer than 6 Frost Class F 4.  PL= NP  D85= 0.165 D30= 0.0333 Cu=  USCS= ML	Sandy silt.  14.3% finer than 0.02mm.  Frost Class F 4.  PL= NP  Atterberg Limits  LL= NV  Coefficients  D <sub>85</sub> = 0.165 D <sub>30</sub> = 0.0333 D <sub>15</sub> = 0.0211 C <sub>c</sub> =  USCS= ML  Classification  AASHTO

Sample No.: 2 Location:

Source of Sample: AP-7

Date: 2/26/01

0" + 110

Elev./Depth: 4.5-6.5

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(no specification provided)

Client: U.S. Army Engineer District, Alaska

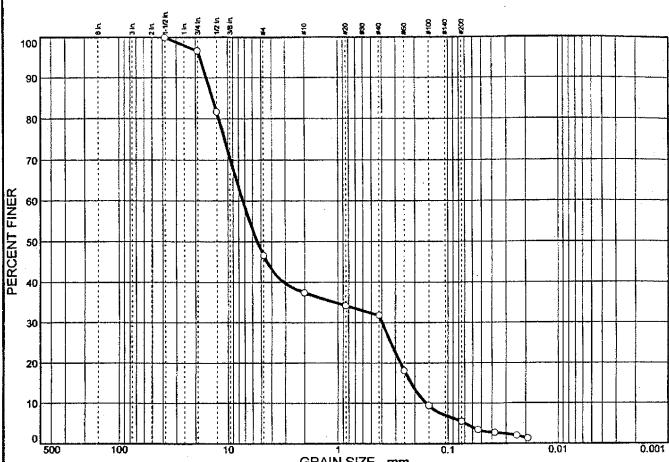
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate





			GRAIN SIZE - IIIII		
į	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
	0.0	53.4	41.1	5.5	

Y	SIEVE	PERCENT	SPEC.	PASS?
ZE	SIZE	FINER	PERCENT	(X=NO)
in. in. #4 10 20 40 60	1.5 in. .75 in. .5 in. #4 #10 #20 #40 #60 #100 #200	100.0 96.7 81.7 46.6 37.4 34.2 31.8 18.1 9.4 5.5		

1.4% finer than Non Frost Susce		
PL= NP	Atterberg Limits LL= NV	PI=
D <sub>85</sub> = 13.8 D <sub>30</sub> = 0.398 C <sub>u</sub> = 46.28	Coefficients D <sub>60</sub> = 7.32 D <sub>15</sub> = 0.216 C <sub>c</sub> = 0.14	D <sub>50</sub> = 5.42 D <sub>10</sub> = 0.158
USCS= GP-G	Classification  AASHTO	)=
Natural Moistur	<u>Remarks</u> e 1.8%.	

**Soil Description** 

Poorly graded gravel with silt and sand.

(no specification provided)

Sample No.: 3 Location: Source of Sample: AP-7

**Date:** 2/26/01 **Elev./Depth:** 9.5-11.5

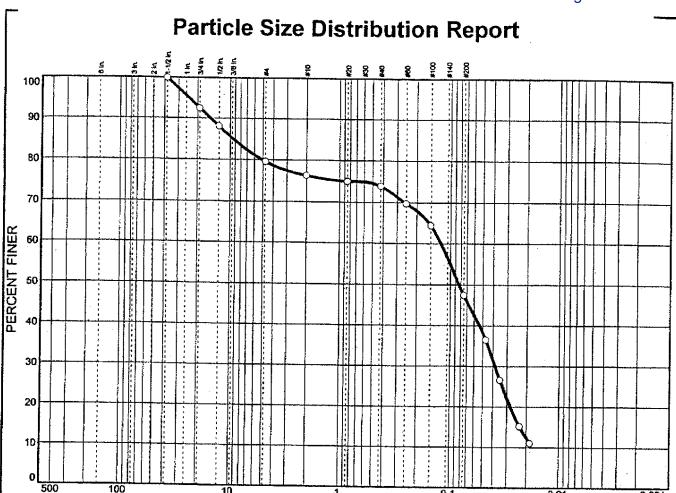
A.W. Murfitt Company Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1.5 in. .75 in. .5 in. #10 #20 #40 #60 #100 #200	100.0 92.5 88.1 79.6 76.3 75.0 73.9 69.7 64.4 47.4		

	Soil Description	
Silty sand with a	gravel.	
12.4% finer than 0.02mm.		
Frost Class F 2.	4	
PL= NP	Atterberg Limits LL= NV	PI=
D <sub>85</sub> = 9.35 D <sub>30</sub> = 0.0384 C <sub>U</sub> =	Coefficients D <sub>60</sub> = 0.122 D <sub>15</sub> = 0.0228 C <sub>c</sub> =	D <sub>50</sub> = 0.0833 D <sub>10</sub> =
USCS= SM	Classification AASHTC	) <del>=</del>
Natural Moisture	Remarks e 9.3%.	

Sample No.: 2 Location:

Source of Sample: AP-8

Date: 2/26/01 Elev./Depth: 4.5-6.5

1 Aladra

A.W. Murfitt Company

(no specification provided)

Client: U.S. Army Engineer District, Alaska

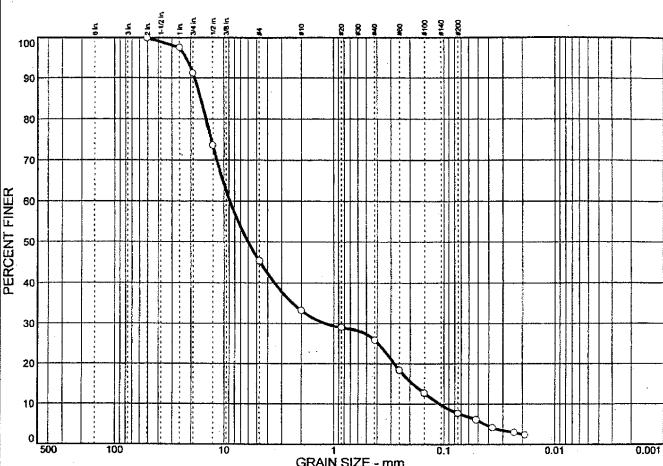
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate





	OF WITE OF THE PERSON OF THE P				
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	
0.0	54.7	37.6	7.7		

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
2 in. 1 in. .75 in. .5 in. #10 #20 #40 #60 #100 #200	100.0 97.6 91.2 73.7 45.3 33.2 29.0 25.9 18.4 12.7 7.7		

2.5% finer than (	Well-graded gravel with silt and sand. 2.5% finer than 0.02mm. Possibly Frost Susceptible.					
PL= NP	Atterberg Limits LL= NV	₽(==				
D <sub>85</sub> = 16.2 D <sub>30</sub> = 1.20 C <sub>u</sub> = 80.87	Coefficients D60= 8.80 D15= 0.189 C <sub>c</sub> = 1.50	D <sub>50</sub> = 6.00 D <sub>10</sub> = 0.109				
USCS= GW-G	Classification M AASHT	'O=				
Natural Moisture	<u>Remarks</u> e 1.9%.					

**Soil Description** 

(no specification provided)

Sample No.: 3 Location:

Source of Sample: AP-8

Date: 2/26/01 Elev./Depth: 9.5-11.5

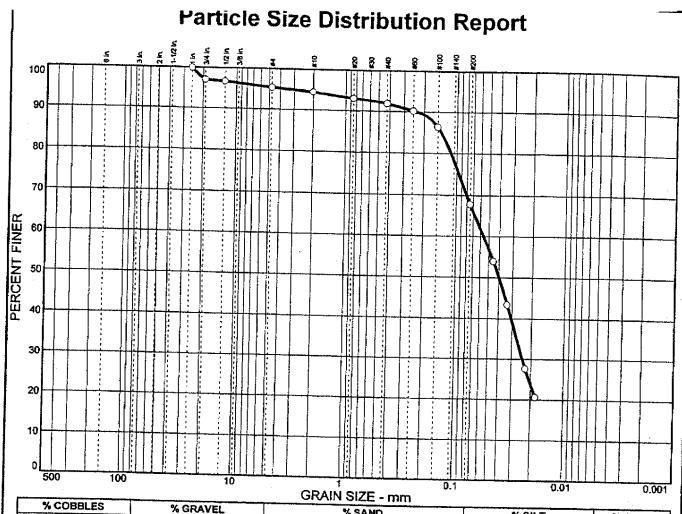
A.W. Murfitt Company Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate



	<del></del>	GLONIN SIZE - MM		
% COBBLES	% GRAVEL		<del>,</del>	
	7/ 0/0/165	%SAND	% SILT	% CLAY
0.0	46	22.4	70 0161	A CLAI
	7.0	27.6	67.8	

SIZE   FINER   PERCENT   (X=NO)	SIEVE	PERCENT	SPEC.*	PASS7
1 in. 100.0 .75 in. 97.0 .5 in. 96.7 #4 95.4 #10 94.4	SIZE	FINER	PERCENT	
#20 93.0 #40 91.9 #60 90.2 #100 86.4 #200 67.8	.75 in. .5 in. #4 #10 #20 #40 #60 #100	97.0 96.7 95.4 94.4 93.0 91.9 90.2 86.4	-	

$C_{u}^{0.0239}$ $C_{c}^{0.0239}$		Soil Description	1
PL= NP	23.7% finer than	0.02mm.	
D <sub>85</sub> = 0.139 D <sub>60</sub> = 0.0562 D <sub>50</sub> = 0.040 D <sub>30</sub> = 0.0239 D <sub>15</sub> = D <sub>10</sub> = C <sub>c</sub> = Classification AASHTO=	PL= NP	Atterberg Limits LL= NV	
USCS= ML AASHTO=	D <sub>85</sub> = 0.139 D <sub>30</sub> = 0.0239 C <sub>u</sub> =	$D_{60} = 0.0562$	D <sub>50</sub> = 0.0401 D <sub>10</sub> =
	USCS= ML		<sup>-</sup> O=
Remarks Natural Moisture 18.6%.	Natural Moisture	<u>Remarks</u> 18.6%.	

Sample No.: 3 Location:

Source of Sample: AP-9

Date: 2/26/01 Elev./Depth: 9.5-11.5

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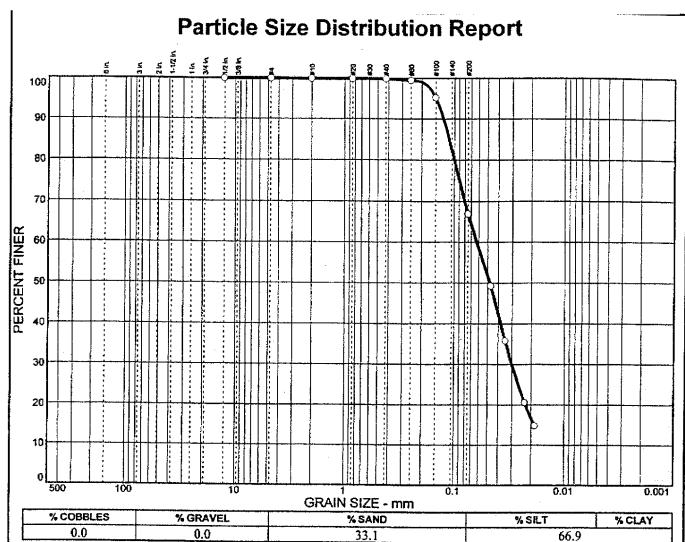
(no specification provided)

Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska Project No: 01-369.08

**Plate** 



SIEVE	PERCENT	SPEC.*	PASS7
SIZE	FINER	PERCENT	(X=NO)
.5 in. #4 #10 #20 #40 #60 #100 #200	100.0 100.0 99.9 99.9 99.5 99.5 95.3 66.9		

	Soil Description	•
Sandy silt.		
16.7% finer than Frost Class F 4.	0.02mm.	
PL= NP	Atterberg Limits LL= NV	Pl=
D <sub>85</sub> = 0.112 D <sub>30</sub> = 0.0302 C <sub>u</sub> =	Coefficients D60= 0.0626 D15= 0.0187 C <sub>C</sub> =	D <sub>50</sub> = 0.0478 D <sub>10</sub> =
USCS= MIL	Classification AASHT(	)=
Natural Moisture	Remarks	
Organics Present		

Sample No.: 2 Location:

Source of Sample: AP-10

Date: 2/26/01 Elev./Depth: 4.5-6.5

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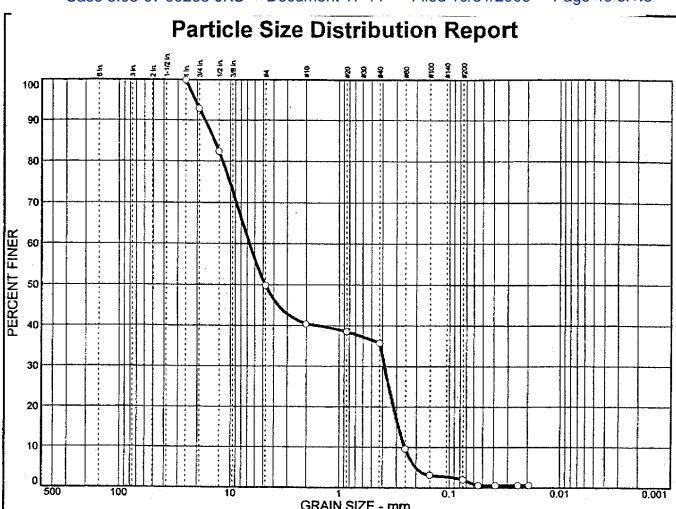
Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate



GIVAIN SIZE - (IIII)				
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	50.2	47.8	2.0	

	SIEVE	PERCENT	SPEC.*	PASS?
i	SIZE	FINER	PERCENT	(X=NO)
	1 in. .75 in. .5 in. #10 #20 #40 #60 #100 #200	100.0 92.9 82.4 49.8 40.3 38.5 35.8 9.6 3.1 2.0		

Soli Descriptio	n
Poorly graded gravel with sand.	
0.6% finer than 0.02mm.	
Non Frost Susceptible.	

USCS= GP Classification AASHTO=

Remarks

Natural Moisture 1.9%.

(no specification provided)

Sample No.: 3 Location: Source of Sample: AP-10

Date: 2/26/01 Elev./Depth: 9.5-11.5

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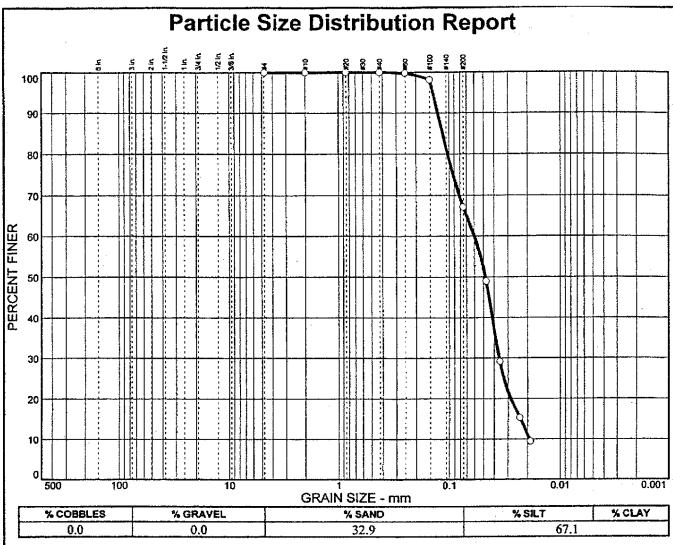
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Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

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SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#4 #10 #20 #40 #60 #100 #200	100.0 100.0 100.0 100.0 99.8 98.2 67.1		

Sandy silt.	Soil Description	•
Sandy Site. 10.9% finer than	0.02mm.	
Frost Class F 4.		÷.
	Atterberg Limits	
PL= NP	LL= NV	PI=
D <sub>85</sub> = 0.115 D <sub>30</sub> = 0.0361 C <sub>u</sub> = 3.12	Coefficients D <sub>60</sub> = 0.0600 D <sub>15</sub> = 0.0231 C <sub>c</sub> = 1.13	D <sub>50</sub> = 0.0481 D <sub>10</sub> = 0.0192
USCS= ML	Classification AASHT	O=
Natural Moistur	Remarks e 14.5%.	

Sample No.: 2 Location:

Source of Sample: AP-11

Date: 2/26/01 Elev./Depth: 4.0-6.0

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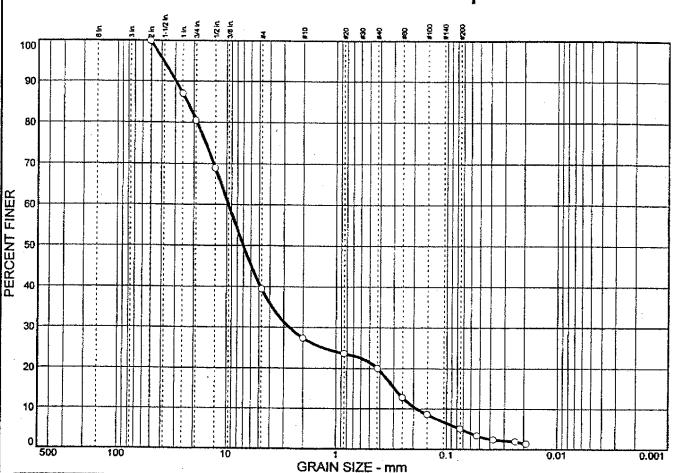
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Fort Wainwright, Alaska

Project No: 01-369.08

Plate





% COBBLES % GRAVEL % SAND % SILT % CLAY 0.0 60.6 34.3 5.1

SIEVE	PERCENT	SPEC."	PASS7
SIZE	FINER	PERCENT	(X=NO)
2 in. 1 in. 75 in. 5 in. #4 #20 #40 #60 #100 #200	100.0 87.0 80.5 68.9 39.4 27.4 23.6 20.0 12.8 8.6 5.1		

1.5% finer than Non Frost Susce		
PL= NP	Atterberg Limits LL= NV	PI=
D <sub>85</sub> = 23.1 D <sub>30</sub> = 2.67 C <sub>4</sub> = 51.66	Coefficients D <sub>60</sub> = 9.63 D <sub>15</sub> = 0.294 C <sub>-=</sub> 3.98	D <sub>50</sub> = 7.02 D <sub>10</sub> = 0.186

**Soil Description** 

Classification USCS= GP-GM AASHTO=

Poorly graded gravel with silt and sand.

Remarks

Natural Moisture 1.4%.

(no specification provided)

Sample No.: 3 Location:

Source of Sample: AP-11

Date: 2/26/01 Elev./Depth: 9.0-11.0

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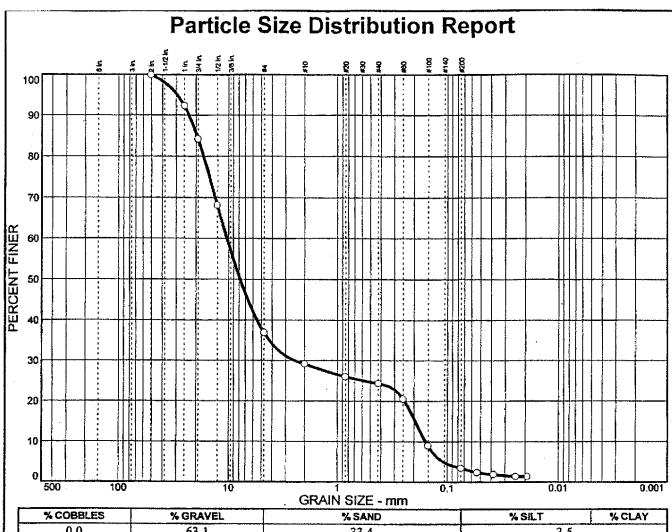
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Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate



, OVAN SIZE - IIIII				
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	63.1	33.4	3.5	

	SIEVE	PERCENT	SPEC.*	PASS?
	SIZE	FINER	PERCENT	(X=NO)
	2 in. 1 in. .75 in. .5 in. #10 #20 #40 #60 #100 #200	100.0 92.3 84.2 68.1 36.9 29.1 26.0 24.3 20.5 9.0 3.5		
- 1				

	Soll Description	·	
	Poorly graded gravel with sand.		
1.4% finer than (	1.02mm.	* 1	
Non Frost Suscep	ptible.	i.	
PL= NP	Atterberg Limits	P =	
D <sub>85</sub> = 19.5 D <sub>30</sub> = 2.46 C <sub>u</sub> = 65.69	Coefficients D60= 10.4 D15= 0.195 C <sub>C</sub> = 3.70	D <sub>50</sub> = 7.82 D <sub>10</sub> = 0.158	
USCS= GP	Classification AASHT	O=	
Natural Moisture	<u>Remarks</u> : 7.1%.		

Sample No.: 6 Location:

Source of Sample: AP-11

Date: 2/26/01

Elev./Depth: 24.0-26.0

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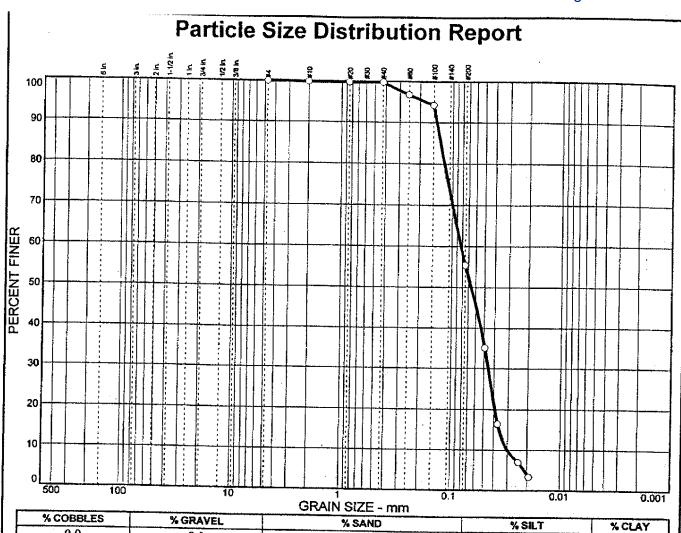
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Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate



44.6

* <del>************************************</del>		
PERCENT	SPEC.*	PASS?
FINER	PERCENT	(X=NO)
100.0 99.8 99.8 99.8 96.8 94.3 55.4		
	FINER 100.0 99.8 99.8 99.8 96.8 94.3	FINER PERCENT  100.0 99.8 99.8 99.8 96.8 94.3

	Soil Description	
Sandy silt. 4.0% finer than 0 Frost Class F 4.	.02mm,	
PL= NP	Atterberg Limits	PI=
D <sub>85</sub> = 0.129 D <sub>30</sub> = 0.0455 C <sub>u</sub> = 2.73	Coefficients D <sub>60</sub> = 0.0826 D <sub>15</sub> = 0.0358 C <sub>C</sub> = 0.83	D <sub>50</sub> = 0.0662 D <sub>10</sub> = 0.0302
USCS= ML	Classification AASHT	^O=
Natural Moisture	Remarks 10.8%.	

Sample No.: 3a Location:

0.0

Source of Sample: AP-12

Date: 2/26/01 Elev./Depth: 9.5-11.5

55.4

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(no specification provided)

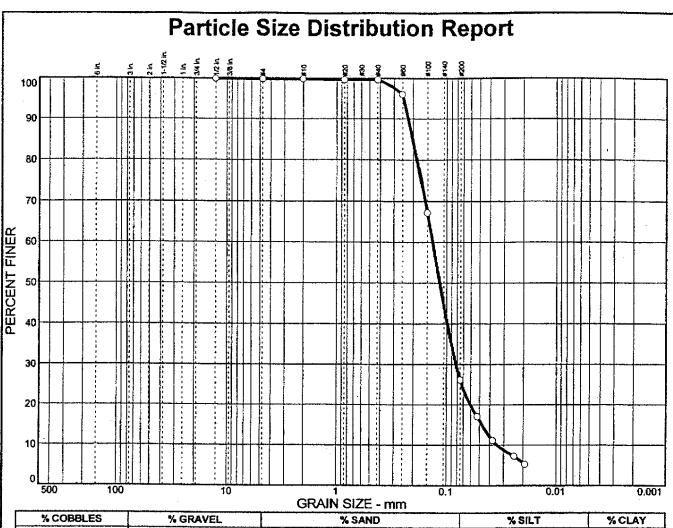
Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate



	OTOMA SIZE - HILL						
	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY		
-	0.0	0.1	73.8	26.1			

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
.5 in. #4 #10 #20 #40 #60 #100 #200	100.0 99.9 99.9 99.7 99.7 96.1 67.2 26.1		

	<b>Soil Description</b>	÷ .
Silty sand. 5.5% finer than 6 Frost Class S 2.	0.02mm.	
PL= NP	Atterberg Limits LL= NV	PI=
D <sub>85</sub> = 0.203 D <sub>30</sub> = 0.0822 C <sub>u</sub> = 3.90	Coefficients D <sub>60</sub> = 0.134 D <sub>15</sub> = 0.0471 C <sub>C</sub> = 1.46	D <sub>50</sub> = 0.116 D <sub>10</sub> = 0.0345
USCS= SM	Classification AASHT	0=
Natural Moisture	Remarks e 33.3%.	
Sticks Present In	Sample.	

Sample No.: 4 Location:

Source of Sample: AP-12

Date: 2/26/01 Elev./Depth: 14.5-16.5

Client: U.S. Army Engineer District, Alaska

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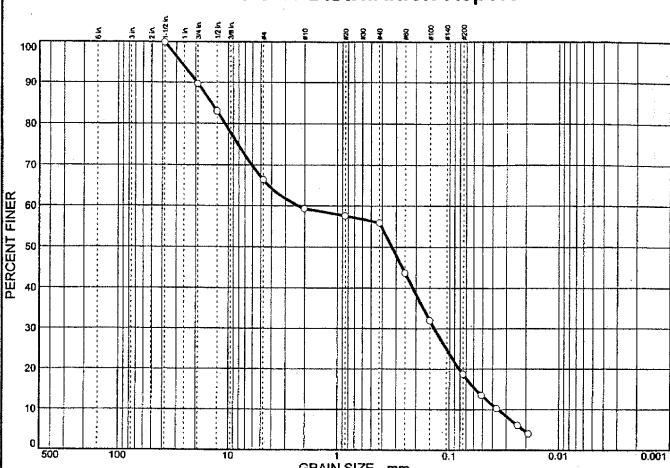
Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate





OJVAN OIZE - MIN					
% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	
0.0	33.6	47.7	18.7	1	

SIEVE	PERCENT	SPEC."	PASS?
SIZE	FINER	PERCENT	(X=NO)
1.5 in. .75 in. .5 in. #10 #20 #40 #100 #200	100.0 89.7 83.0 66.4 59.3 57.6 55.9 43.7 32.0 18.7		

Soil Description					
• •	Silty sand with gravel.				
4.5% finer than 0	).02mm.	4.5			
Frost Class S 2.					
PL= NP	Atterberg Limits LL= NV	PI≔			
D <sub>85</sub> = 14.3 D <sub>30</sub> = 0.137 C <sub>u</sub> = 64.57	Coefficients D60= 2.29 D15= 0.0578 Cc= 0.23	D <sub>50</sub> = 0.328 D <sub>10</sub> = 0.0355			
USCS= SM	Classification AASHT	O=			
	Remarks				
Natural Moisture	Natural Moisture 20.1%.				
Organics Present	Organics Present In Sample.				

Sample No.: 3 Location:

Source of Sample: AP-13

Date: 2/26/01

Elev./Depth: 9.5-11.5

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Client: U.S. Army Engineer District, Alaska

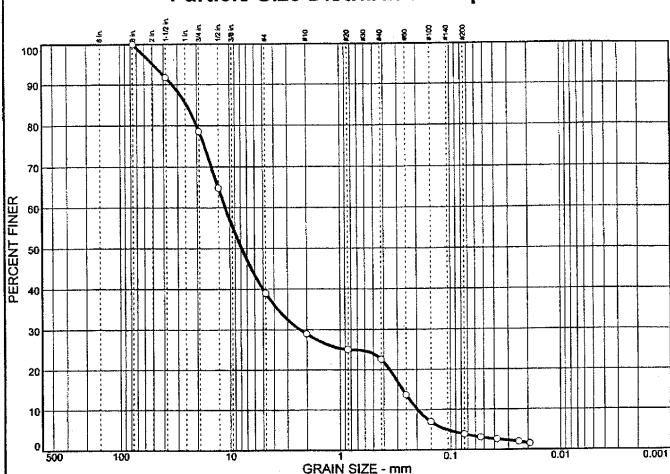
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Fort Wainwright, Alaska

Project No: 01-369.08

**Plate** 





% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	61.1	35.0	3.9	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3 in. 1.5 in. 75 in. 5 in. 410 #20 #40 #60 #100	91.8 78.6 64.8 38.9 28.9 25.0 22.6 13.7 7.0		

	Soil Description		
Well-graded gravel with sand.			
1.6% finer than			
Possibly Frost St	usceptible.		
PL= NP	Atterberg Limits LL= NV	P =	
D <sub>85</sub> = 24.7 D <sub>30</sub> = 2.30 C <sub>u</sub> = 55.95	Coefficients D60= 11.0 D15= 0.269 Cc= 2.45	D <sub>50</sub> = 7.84 D <sub>10</sub> = 0.197	
USCS= GW	Classification AASHT	O=	
Natural Moistur	<u>Remarks</u> e 6.6%.		
•			

Sample No.: 5

Source of Sample: AP-13

Date: 2/26/01

Location:

Elev./Depth: 19.5-21.5

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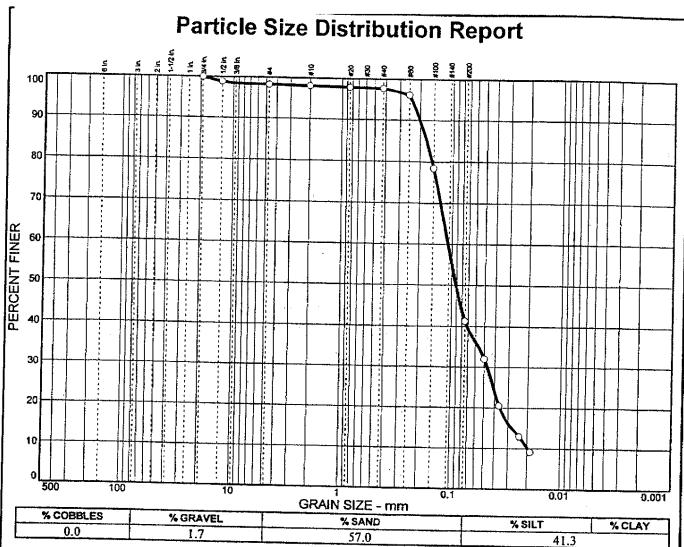
Client: U.S. Army Engineer District, Alaska

Project: Family Housing Upgrade (FTW230)

Fort Wainwright, Alaska

Project No: 01-369.08

Plate



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
.75 in. .5 in. #4 #10 #20 #40 #60 #100 #200	100.0 98.9 98.3 98.1 97.9 97.7 96.2 78.4 41.3		
* (no specification provided)			

	Soil Description		
Silty sand.			
10.1% finer than	0.02mm.		
Frost Class F 2.			
PL= NP	Atterberg Limits LL= NV	PI=	
D <sub>85</sub> = 0.174 D <sub>30</sub> = 0.0468 C <sub>u</sub> = 5.51	Coefficients D <sub>60</sub> = 0.109 D <sub>15</sub> = 0.0277 C <sub>c</sub> = 1.02	D <sub>50</sub> = 0.0915 D <sub>10</sub> = 0.0198	
USCS= SM	Classification AASHTO	)=	
Remarks Natural Moisture 11.3%.			

Sample No.: 2 Location:

Source of Sample: AP-14

Date: 2/26/01 Elev./Depth: 4.5-6.5

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